Volume XXIV
Number 5
May, 1948

SOAP and SANITARY CHEMICALS

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Published Monthly By
MAC NAIR-DORLAND COMPANY
Publication Office
123 Market Place, Baltimore 2, Md.
Editorial and Advertising Office
254 W. 31st St., New York 1, N. Y.
Address all correspondence to the New York Office

Subscription rate, $4.00 per year. Foreign, including Canadian, $5.00. Copy closing dates—22nd of month preceding month of issue for reading matter and 10th of month preceding month of issue for display advertising. Entered as second-class matter at the Post Office, Baltimore, Md., under the act of March 3, 1879.

AS THE EDITOR SEES IT

THE alkali supply situation shows little inclination to improve. Nor does demand display any tendency to slow down. Buyers are still using all means to obtain larger shipments sooner. Especially in the case of caustic soda, consumer demand seems insatiable. This was the situation,—and still is,—when one of the largest mid-west producers had to shutdown last month because of a strike.

That a strike in a large alkali plant at a time like this has not helped matters needs no further exposition here. But this is not the only dark cloud on the horizon. The threat of further labor troubles among other alkali producers may not be too remote. The United Mine Workers, under whom the alkali industry is organized, may present demands which it is far from certain can or will be met.

To the soap industry a break in the continuity of alkali supplies would be nothing short of a calamity. As a matter of fact, between a lack of coal and a lack of alkali, there is little to choose for industry as a whole. So diversified are the uses of alkalies today that they are almost as indispensable as coal to the operation of our industrial machine. That a strike could occur in either industry is a sad commentary on this supposedly modern economy of ours about which we are prone at times to boast.

JUST what inroads have various synthetic detergents made into the textile industry as a replacement for olive foots soaps? Did the practical absence of these soaps during eight or nine years wean textile processors away from them in favor of synthetic detergents? These interesting questions arose recently when it appeared that textile soap makers were not taking up new offers of olive oil foots with anything resembling alacrity. In fact, it seemed that interest in the raw material for olive textile soaps was finding a market with more than usual difficulty.

Opinions that replacement of foots soaps by synthetic detergents is more or less permanent seem general. And even at prices well below present high levels, it is contended, the old-time textile soaps will have a tough time regaining their pre-war market. But if foots remain in steady supply in the Mediterranean area, and the price declines to a figure of interest,—soapers are emphatic in their lack of interest at current prices,—we may see a return to market of the olive oil toilet soaps and the castile shampoos of pre-war days. But soapers will have to see a more attractive market than the present one before they might be prompted to act.

AS new synthetic glycerine production comes into the market, speculation is noted regarding its effect on the future of soap-kettle glycerine. A look into the books of soapers for the past two years, specifically those who recover glycerine, would undoubtedly reveal that no small part of their profits may be traced to the relatively high prices for glycerine. Soap production alone has not yielded the net return for which on many occasions it receives credit.

Glycerine has been a steady money-maker during recent years chiefly because of unprecedented demand and high prices, — thirty cents for crude and forty for refined. With any appreciable continued output of synthetic glycerine in the offing, the long-range trend in glycerine prices naturally would seem to be downward. And it is in the light of this possibility that some soapers are viewing their profit figures of the future. If crude glycerine were selling for ten cents instead of thirty, many soap plant over-all profits would be reduced to the point of being practically non-existant.

For many years glycerine has played a peculiar role in the soap industry. At times it has represented the sole slim margin of profit in soap manufacture, — and again a veritable liquid gold. And at other times, it has been consigned to the sewer, not worth the cost of refining. Its chequered career has reached the peaks and plumbed the depths. As for the future, unless demand continues to expand and absorb new synthetic production, keener competition appears to be on the horizon. At lower prices, glycerine may not always be the useful crutch to profits which it has been recently in some soap plant cost systems.

WITH the adoption of the European Recovery Plan by Congress last month, the character of the oil and fat markets appeared to change. The potentialities of the ERP as a bullish influence on prices were reflected in a firmer undertone throughout the market, — or at least it appeared that way. The feeling seemed prevalent that the movement of prices in the near future would be upward. Which, according to some Washington observers, is exactly the result that government agencies are seeking in spite of talk about safeguards against inflation. At least until the 1948 elections are over, the intent to keep oil and fat prices, as well as other basic agricultural commodities, at high levels appears quite logical. Reasonably high prices through the summer and early fall are not unlikely.

Before the year is out, the small soaper might find himself in the middle of this politico-economic squeeze. Hopes that lower oil and fat prices might come out of the current lethargic market situation seem to have declined in some quarters. The worldwide production and availability, which appear to be improving steadily, may not cut much of a figure in the American market. The ERP plus controls are powerful tools which will permit the government to do just about as it sees fit, — and there are those who believe that this will not include permanently lower fat and oil prices for some months to come.

If prices stay up or go higher, those smaller soapers who have been inclined to cut soap prices of late may be cutting their own throats with the same operation. They must appreciate that the basic complexion of the whole fat and oil situation can change overnight. An extra tank of reserve oil is not likely to be the potential liability which it could have been two months ago.

Diametrically opposed to this thinking is that of one prominent soaper who came out flatly with the prediction to us recently that fat and oil prices would be under fifteen cents average by the middle of July. He says that dollar hunger all over the world, greater now than ever, will turn the trick, controls and politics to the contrary notwithstanding. So once again, soapers sit on the fence wondering which way to jump, mumbling the old race-track adage, "you pays your money and you takes your choice."

THE beauty shops, — or shoppes if they get two bucks for a shampoo, — are taking it on the chin, according to none other than the Beauty and Barber Supply Institute. Milady is now shampooing and waving her hair at home, giving the professional beautician the old and well-known go-by. While bankruptcy threatens and the sheriff leers in at the beauty shop owner, the half-starved cosmetic manufacturer and his cohort in the shampoo business, rub their hands in anticipation. Coincidentally, a leading soaper recently distributed several million samples of a new cream shampoo for home use. Leading department stores, mail-order houses, name-brand cosmetic manufacturers, drug chains, — these and others are either out with new home beauty kits, or are rushing to bring them out. Several have dropped in to ask our profound and sage advice on their kits which usually contain a cream or liquid shampoo, sometimes a jar of wave goo, and hair polish.

These wild market rushes always pay off, but mostly in headaches. A lot of marketers are going to be burned, as are the scalps of many a user. A lot of junk is going to come on the market. But, if experience is any indication, the rush should not last too long. A year or so hence, many of these new flash-in-the-pan things will be gone with the wind.

The Dermatological Action of SKIN CLEANSERS

By

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IN order to comprehend the dermatological action of soaps and synthetic detergents it is first necessary to study their chemical composition, their properties and modes of action as cleansers. Soaps are salts of fatty acids. Because sodium and potassium salts of fatty acids are soluble in water, they can be used as detergents. Sodium soaps form hard soaps and potassium salts form soft or liquid soaps.

The fatty acids commonly used in soap are:

SATURATED FATTY ACIDS	Mol. weight
Stearic acid $C_{17}H_{35}COOH$	284
Palmitic acid $C_{15}H_{31}COOH$	256
Myristic acid $C_{13}H_{27}COOH$	228
Lauric acid $C_{11}H_{23}COOH$	200

UNSATURATED FATTY ACIDS	Mol. weight
Oleic acid $C_{17}H_{33}COOH$	282
Ricinoleic acid $C_{17}H_{32}OH$ COOH	298
Linoleic acid $C_{17}H_{31}COOH$	280

The following fatty acids and their salts have been shown to be fungicidal:

Propionic acid C_2H_5 COOH Sodium propionate
Caproic acid $C_5H_{11}COOH$ Sodium caprate
Caprylic acid $C_7H_{15}COOH$ Sodium caprylate
Pelargonic acid $C_8H_{17}COOH$ Sodium pelargonate
Undecylic acid $C_{10}H_{21}COOH$ Sodium, zinc & copper undecylenate
Tridecylic acid $C_{12}H_{25}COOH$ Sodium tridecanate, sodium tridecylate, potassium or sodium

The following animal fats are used for soap making: tallow, lard, bone fat, horse fat, horse marrow, fish oils, waste fats.

The following vegetable oils are used for soap making: cocoanut, olive, olive kernel, cotton-seed, castor, peanut, soya bean, linseed, palm, palm-kernel, hemp seed, sesame, sun flower seed.

Soaps made solely from tallow (tristearin, tripalmitin and triolein) are not very soluble and have an inferior but persistent lather. These faults are usually remedied by mixing cocoanut oil with the tallow before adding the alkali.

Fish oil soaps have an unpleasant odor due to the formation of methyl amines. Hydrogenation of the oil before adding the alkali tends to lessen the odor.

Cocoanut oil (lauric, myristic and palmitic acids) makes a soluble hard soap which lathers well even in salt water.

Olive oil (triolein, tripalmitin, tristearin, linolein) soaps are made from second pressing or from the oil extracted with carbon bisulfide (CS_2) after the second pressing. Olive oil soaps are easily soluble in water and form a thin lather.

Rosin (colophony) is also used for making soap. It forms a hydroscopic, easily soluble, soft yellow soap. Rosin soaps may be added to tallow soaps to impart desired properties, also to lower their cost, and to save fats. This was done during World War II.

Soluble soaps made from different fatty acids undergo different degrees of hydrolysis when mixed with water, but all such soaps hydrolyze when dissolved in water and form free alkali. Therefore, all soap solutions, even of the so-called neutral soaps, are alkaline.

The Bureau of Standards gives the following specifications for soap:

Milled Toilet Soap. To be at least as good as one made exclusively of soda and a mixture of about 87 percent of best grade tallow and 13 percent of pure cocoanut oil. It shall be as free of water as possible. It shall not contain more than

	Percent
Volatile Matter at 105°C.	15.
Free alkali as NaOH	0.1
Alkaline salts as Na_2CO_3	0.3
Sulfates	0.1
Chlorides	0.3
Insoluble substances	0.1

Laundry Soap Special Grade. Should be well made and uniformly mixed from soda and fats of high melting point; should not contain more than relatively small proportions of rosin; should be low in alkaline salts; free from objectionable odor and filler; not more than 20 per cent of water and should be suitable for use in soft water. It should not contain more than

	Percent
Volatile matter at 105°C.	34.
Free alkali calculated at NaOh ..	0.2
Alkali calculated as Na_2CO_3	1.
Chlorides and sulfates together ..	1.
Matter insoluble in water	0.1
Rosin	15.

Liquid Soap. Should be a clear solution of a pure vegetable oil-potash (or potash and soda) soap, with or

* Given before the annual meeting of the Soap and Detergent Manufacturer's Assn., New York, Jan. 27, 1947.

without alcohol or glycerol. It should be free from foreign matter and suitably perfumed. It should quickly form a satisfactory lather when applied to the hands, have no injurious effect and leave no objectionable odor other than that of cocoanut oil on the skin.

	Percent
Total soap not less than	20.
Free alkali calculated at KOH not to exceed	0.25
Alkali salts calculated as K_2CO_3 not to exceed	0.3
Chlorides calculated as KCL not to exceed	0.3

No sugar or sulfates.

Chemicals Added to Soap

IN regions where the water supply is hard, ordinary soaps do not clean as well as where the water is soft. Water softeners may be added to soaps to overcome this condition. The following are some water softeners:

	Trade Name
Sodium hexametaphosphate	Calgon
Neutral sodium metaphosphate	Paratox
Tetra sodium phosphate	Phosphotex
Sodium tetraphosphate	Quadrafos

These water softeners when added to soaps add little, if any, to whatever deleterious effects the soap may have on the skin.

Alkalis are added to soaps which are to be used for the removal of tenacious matter from the skin. Sodium carbonate, sodium silicate, sodium metasilicate, trisodium phosphate and trisodium borate are the principal alkalis which may be added to soaps. They all raise the pH of the soap solutions and considerably increase the skin irritating properties of soaps.

Certain solvents are added to soaps used for spot cleaning. Some of the solvents used for this purpose are the chlorinated hydrocarbon solvents, carbitol and solvent naphtha. These added solvents greatly increase the dermatitis hazard of the soap.

The lathering of soaps while valued by the users, does not add to the detergent properties. Certain chemicals can be added to soaps to increase lathering. Adding to soap moderate amounts of alkalis, sulfonated castor oil, and mixtures of turpentine with perchlorethylene, is said to increase lather.

Solutions of soaps containing solvents or additional alkali should not be used as skin cleansers. If they do come in contact with the skin for any length of time, they should be washed away with ordinary soap and water or with an emollient cleanser, followed by the application of a fat restoring cream, such as anhydrous lanolin parts 70, castor oil parts 30, and about one part of perfume.

Theories of Soap Detergency

THERE are a number of theories regarding the manner in which soaps remove soil from the skin.

1. When soap dissolves in water, the alkali which is set free *emulsifies soil* adhering to the skin and enables it to be loosened and carried away by the solution.

2. The alkali liberated when soap is in aqueous solution *dissolves* oils and the fatty adherent matter on the skin.

3. Alkaline soap solutions wet and penetrate oily skin and also have surface activating properties all of which *loosen adherent* soil which is then washed away by the solution.

4. The alkaline soap solution acts as a *lubricant* thus allowing soil to be more easily rubbed off.

5. The hydrolysis of soap forms colloidal acid soaps which in turn form colloidal absorption compounds with soil on the skin.

It will be noted that the first four of these theories are based on the fact that when soap goes into aqueous solution, alkali is liberated and the solution is alkaline. The alkaline solution has the same action on the natural, normal fats on the skin and as far into the follicles of the skin as the solution can penetrate, as it has on foreign soil on the skin; namely, it emulsifies, dissolves, loosens and washes away whatever it can reach of the natural normal necessary skin fats. The free alkali also attacks the cells of the epithelial layers tending towards softening, swelling and loosening them, and permitting them to be washed away by the soap solution.

Antiseptic Properties of Soap

KOCH, in 1881, showed that soap solutions inhibited bacterial growth. Reasoner, in 1917, showed that soap solutions kill the *Spirochaeta pallida*. Others have shown that cocoanut oil soaps destroy *Staphylococcus aureus, Bacillus typhosus, Bacillus pyocyaneous*. Soap solutions will kill streptococci, pneumococci, meningococci, gonococci and diphtheria bacilli. Diasco (1) concludes that soaps are germicidal toward certain organisms especially those in the mouth; excess alkali has no effect on the germicidal power and adds to the keratolytic action. Klarmann (2) concludes that the more resistant pathogenic organisms do not succumb to soap and he with Shternov (3) showed that only salts of fatty acids with eight to 10 carbon atoms evidenced a germicidal efficacy and these acids do not occur in fats and oils used in soap making.

Soaps themselves are mild antiseptics. Hot soap solutions are more effective as antiseptics than cold solutions. Of the fatty acids, palmitic is said to have the strongest disinfectant action and the disinfectant powers decrease with the molecular weight. From all these differences of opinion, it can be seen soaps alone cannot be relied on for antisepsis.

Phenols and cresols added to soaps have been found by many to increase the antiseptic powers of soap. Recently a chemical known as "G-4" has been claimed to add considerably to the antiseptic powers of soap.

Medicated Soaps

SOAPS in the course of washing remain on the skin for only a short time and in dilute solution. Therefore, they are poor vehicles for medicaments. Nevertheless, medicated soaps are being sold and allergic dermatitis is not rare from the medicaments used in soaps. Allergic dermatitis from chemicals used in deodorant soaps is not uncommon. Vitamin containing soaps are of no medicinal value.

The following is a list of some of the medicated soaps

Phenolated soaps-Phenylpalmitate

Chlorinated soaps containing sodium and calcium hypochlorite

Formalin soaps containing 2-3 percent formalin

Mercury soaps

Sulfur soaps

Beta naphthol soaps

Peroxide soaps

Petroleum soaps

Pyridin soaps } Insecticidal

Naphthalene soaps } Insecticidal

Tar soaps

Perfumes added to toilet soaps may be the cause of allergic dermatitis. The oils of cassia, citronella, mirbane (nitrobenzol) and cloves are well known skin irritants. Other perfumes used in soaps are:

The oils of caraway, cedar, eucalyptus, geranium, lavender, pine needle, rosemary, sassafras, thyme, verbena, wintergreen.

Superfatted Soaps

UNNA, the eminent dermatologist, devised an over-fatty super-fatted soap which he said would be milder in its action on the skin than ordinary soap. He attributed the deleterious effects of soaps to their alkalinity and their defatting properties. He stated that by adding 3-4 percent excess fat to the soap any free alkali would be converted into soap and that the excess fat would also act as an emollient and tend to replace the fat taken out of the skin by the detergent action of the soap. He recommended his soap for use on dry skin, on eczematous skin and in cases where frequent washing of the hands was necessary.

Unna's theory of the action of superfatted soaps has been disputed. Some say that the super fat simply lessens the detergent action of the soap; i. e., wastes the soap. Others maintain with Unna that more fat remains on the skin after using a superfatted soap than after using ordinary soap. It has been my observation that sufficiently superfatted soaps (those containing five percent free lanolin) leave the skin softer, more pliable and less dry than do ordinary soaps and that people with dry skin prefer superfatted soaps to ordinary soaps.

Soap Action on Skin

SOAPS tend to defat the skin and have a keratolytic action on the epithelium. It has been stated by Blank (8) that soaps made of saturated fatty acids of low molecular weight are more irritating than those made from saturated fatty acids of high molecular weight. He further states that both the alkalinity of the soap solutions and the fatty acid used in making the soap are factors in causing soap dermatitis.

Jordan et al (4) state that soaps are important causes of hand eczemas and that positive patch tests to dilutions of 1:100 or greater indicate allergy to the ingredients in the soap.

Goldman (5) states that patients with contact dermatitis react more frequently to soap than those with normal skin and that new-born infants react much less frequently to soap than older ones. Soaps have a physical and chemical action on the skin. A solution of good toilet soap has a pH of about 10. and while Pillsbury (6) has shown that the normal skin withstands for a while a certain amount of a solution having a pH of 12. This does not hold true for a skin that is deficient in its protective epithelial layer or in sebaceous glands. Such a deficient skin may not withstand even a soap solution with a pH of 10. The alkali may dissolve or swell the keratin layer and attack the stratum mucosum. The sebum, cholesterol and other natural fatty matter which the soaps remove may not be replaced sufficiently rapidly to prevent chapping and cracking of the skin. Prolonged action of soap solutions, especially those containing excessive free alkali will result in dermatitis even on a normal skin.

The dermatitis will occur more rapidly in the case of thin, dry or senile skins than on thick, oily or young skins. Some skins, young or old may become allergic either to the alkalinity present in all soaps or to fatty acids, or other substances contained in certain soaps. Soaps made from cocoanut oil, fish oil, rosin, and from "foots" are said to be more likely to cause allergic dermatitis than soaps made from other fats.

Liquid Soaps

LIQUID soaps are potassium salts of fatty acids (usually of cocoanut oil) dissolved in water. The solution contains about 20 percent of soap and may have added to it glycerine, sugar and alcohol, to prevent cloudiness and foaming in the container. The soap may be in alcoholic solution or have a considerable amount of alcohol added to the aqueous solution. The glycerine is probably a desirable addition because of its emollient properties.

An advantage of liquid soap over solid soap is that no other person can come in contact with the liquid as they can with the hand soap. Another advantage is that it has a quicker detergent action, because the soap is already in solution. For this reason liquid soaps defat the skin more readily than cake hand soaps. Potassium soaps of the saturated fatty acids are said to possess considerable disinfectant powers and in alcoholic solutions lend themselves better to mixing with strong antiseptics, than do solid soaps. Spirit soap (spiritus saponis kalini) consisting of 65 percent of potassium soap, 35 percent ethyl alcohol and ½ one percent of oil lavender has the reputation of being a good antiseptic soap and is used by surgeons for scrubbing the hands before operations. After scrubbing with the soap the hands are rinsed in sterile water, followed by rinsing in a solution of bichloride of mercury and then in ethyl alcohol.

It is not uncommon to have surgeons and others frequently using liquid soaps to develop dermatitis especially during cold weather. The defatting of the skin plays no small role in causing this condition, although allergy to the antiseptic is the principal cause. It may be well to experiment with additions to liquid soap, of sulfonated castor oil, lanolin, cholesterol or other sterols to lessen the defatting and irritant action of liquid soaps.

Indicator Soaps

THERE has been a demand for an industrial hand cleanser which would neutralize dangerous chemicals on the skin and also show their presence by a color change so that washing would continue until there was no more color showing. The first of these soaps was developed by Norwood (7) and consisted of a liquid soap to which five-10 percent of potassium sulfite and five-15 percent of a wetting agent were added. This soap showed a purple color as long as T.N.T. or tetryl was present on the part being washed. More indicator soaps should be developed.

A good toilet soap should have these properties:

1. It should be freely soluble in hard, soft, cold, and hot water.

2. It should remove foreign grease and soil without extracting the natural fats and oils from the skin.

3. It should not contain harsh abrasives or irritant scrubbers.

4. It should not contain irritating added chemicals.

5. It should be handy to use in cake form or flow easily through soap dispensers if in another form.

6. It should not deteriorate or become insect infested.

Cleansers Other than Soap

IN recent years a class of synthetic compounds has been developed which have better wetting and penetrating properties than soaps. The simplest and oldest of these is sulphonated castor oil long known to the textile industry as Turkey Red oil. In Germany, a group of wetting agents called "Igepons," which are different from sulphonated oils, were developed about 20 years ago. Since then a large number of synthetic detergents have been developed and have come into industrial and medicinal use. Nearly all of this class of synthetic wetting agents contain a hydrophilic sulfo radical combined with an oleophilic hydrocarbon radical, such as naphthalene, benzene, alcohol, or a fatty acid. The following are a few examples of such wetting agents:

"Aerosol O. T." Di-octyl sodium sulfo succinate. (American Cyanamid Co.)

"Gardinol W. A." Sodium sulfate of lauryl alcohol. (Du Pont and Procter & Gamble Co.)

"Nacconol N. R." Sodium alkyl aryl sulfonate. (National Aniline Div., Allied Chemical & Dye Corp.)

"Ultra Wet" Sodium alkyl benzene sulfonate. (Atlantic Refining Co.)

These wetting agents can be used as skin cleansers. They have some advantages over soap as far as skin irritation is concerned in that they can be made neutral or even acid and, therefore, may be used by those who are alkali sensitive. On the other hand, they are more defatting to the skin than soap and cause more allergic reactions. They can be advantageously combined with soaps or sulfonated oils to make foaming cleansers that act in hard and soft water. More recently, another class of wetting agents, the quaternary ammonium compounds, has been developed. The quaternaries have cationic electrical properties and do not mix with soap. They have marked fungicidal and disinfectant powers and are gradually coming into use as skin cleansers. Some of them foam well, while others do not. They can markedly defat the skin and some of them have been found to be powerful sensitizers. We have found them to be valuable fungicidal agents in the treatment of superficial fungous infections and they are coming into use as antiseptic cleansers and dressings. Some of the best known of the quaternary ammonium compounds are:

"Zephiran chloride" (alkyl dimethyl benzylammonium chloride. Winthrop Chem.)

"Phemerol" (One of Hyamines. Parke, Davis)

"Westamine" (West Disinfecting Co.)

"Emulsept N" (Acyl calamino formyl methyl pyridinium chloride. Emulsol Corp.)

Cleanser Dermatitis Diagnosis

BY far the large majority of people can safely use hand soaps for ordinary washing of hands. However, there are many occupations in which it is necessary to wash the hands frequently or to have the hands wet with solutions of strong cleansers for long periods. Scrub women, dish washers, soda fountain dispensers, laundry workers, wool scourers, wool fullers, silk throwsters and housewives are exposed to the long continued action of strong cleansers. They develop either acute dermatitis with vesicles and oozing on the back of the hands and fingers, or chronic inflammation with erythema, dryness, scaling, thickening and cracking of the skin of the back of the hands and palms, and inflammation around the nails. The inflammation may even extend up the forearms as far as the elbows.

When soap is suspected to be the cause of an acute dermatitis, patch tests may be used to establish the cause. A patch test of three percent solution of the suspected soap remaining on an unaffected portion of the skin for 24 hours will cause a positive reaction either at the time the patch is removed or two or three days later if the patient is hypersensitive to the soap. A light brownish desquamation occurs at the patch site in most cases, and is not to be mistaken for a positive reaction.

The chronic fissured types of inflammation of the skin are due to long continued defatting and keratolytic action of soaps, and patch tests on unaffected parts of the skin may be negative.

If the diagnosis of soap sensitivity is established, patch tests should be performed with neutral soaps made of (1) pure tallow, (2) pure cocoanut oil, (3) rosin and any other suspected fats used in soap making. Positive reactions to any of these will establish the cause of the sensitivity. Positive reactions to all of them usually mean a hypersensitivity to alkalis in general.

If there is a positive patch test to the suspected soap, but none to patch tests with the pure soaps, the chemicals added to the suspected soap should be suspected i.e., added alkali, medicament, perfume, dye, etc., an effort should be made to identify the irritant by more patch testing.

Cleanser Dermatitis Treatment

THE treatment of dermatitis from cleansers is to allay the inflammation first. If it is acute with vesicles and oozing, soothing wet dressings such as dilute solutions of aluminum acetate should be applied until the acute symptoms subside. They should be followed by mild ointments, such as boric acid ointment, aluminum acetate ointment, zinc ointment, etc. Strong medicaments, or X-ray should not be used in acute dermatitis. In chronic cases, mild fatty ointments with occlusive dressings often bring about a cure. In some chronic cases, it may be necessary to apply mildly stimulating ointments.

When allergy to a particular fatty acid, medicament, dye or perfume in the cleanser has been found to be the cause of the dermatitis, a soap should be prescribed which does

(*Turn to Page* 159)

The Outlook for

OLIVE OIL FOOTS

Available for spot delivery at 23 cents a pound, declines in tallow prices and soap sales hurt foot sales for soaps.

THE return to the American market recently of quantities of olive oil foots approximating normal pre-war tonnage was greeted with something less than enthusiasm by soapers, who declared that other oils have "stolen the market" from olive foots. Some importers were inclined to go along with the point of view expressed by the soap makers that unless prices on olive foots dropped radically the present market for the foots was not likely to see a revival of the popularity of the one-time highly useful Mediterranean oil. A late April quotation on the olive foots was 23 cents a pound in tank cars, 24-24½ cents in drum lots.

As if the price picture for olive foots were not dark enough the easy availability of tallow, which reached 14 cents a pound on April 30, the more recently lower price for red oil and a more plentiful supply of olive oil foots replacement in some types of soap—were doing nothing to encourage buying of the foots. Added to the gloom is the fact that soap sales have dropped off sharply in the first quarter of the year, with the result that purchasing departments in soap plants, enjoying a moment of inactivity, are not much interested in buying olive oil foots—or anything else for that matter, according to one soaper.

One importer, who had definite ideas as to the high quality of textile scouring soaps, made with olive oil foots, believes the foots will in time retrieve some of the ground they lost as a result of the virtual absence of olive oil as a soap raw material during the war years. He pointed out—and this was confirmed by soapers themselves—that soap makers had gotten out of the habit of using olive oil and foots and that there is a natural reluctance to change formulations, since both user and manufacturer seem satisfied with soaps containing substitutes for olive foots. A change will come about with the gradual re-incorporation of olive oil foots in soap formulations, one importer stated. He believes that once the practice of using foots on a broader basis than at present begins, other soapers will follow the lead. In selling soaps, olive foots content will be mentioned and buyers will once again begin to specify them, so this theory goes.

Earlier this year, it was announced that tentative allocations of oils and fats for the United States in 1948 would include 33,000 tons of olive oil, of which about 9,000 tons would be foots and sulfur oil and 24,000 tons the edible grade. It is now believed that the figures for the olive oil were too optimistic. About half the quantity of foots that was earmarked for import by the United States is all that will be available according to one informed trade source. The major sources of the surplus olive oil are Italy and Greece, which had good crops last year. Greece has reduced her surplus now to the vanishing point, one source states, while Italy recently discontinued issuing export licenses because of the small quantity, about 5,000 tons, still remaining. Of this amount, it is understood, a sizable tonnage has been set aside to meet the needs of Egypt. Greece has about 500 tons left of her surplus, no more certainly, informed

sources believe. Spain was also reported to have had a good olive crop in 1947, but Italy and Greece were the countries with the biggest surpluses. No sulfur oil from other olive producing Mediterranean countries was reported as exportable surplus.

Buying of olive oil foots in the United States is being done on a limited basis. Buyers who formerly bought five tank cars of foots monthly, at present buy one tank car.

Lack of dependability of the supply of olive oil as a soap making raw material is another factor that bothers the soap plant purchasing department. The declining volume of olive oil foots for soap making in the last 15 years coupled with talk of the possibility of another war are spectres on which soapers are glad to turn their backs. Especially since they have managed to struggle along with greatly lessened quantities of olive oil foots in the past few years.

Because of the world wide shortage of fats and oils, olive oil foots are more valuable in other countries than in the United States. This is particularly true of Egypt, Holland and Belgium, who will pay higher prices for the oil than users in the United States. The oil is paid for in sterling or dollars, which olive oil producing countries are anxious to obtain. Another factor is the replacement cost of the foots. If the foots are exported from producing countries, other oils for producing soap, etc., must be obtained. If they are bought on the open market the replacement oils are more expensive than the price of the foots. Present olive oil foots prices are high in comparison with tallow, the one fat whose price has reversed the general trend and dropped to new post-war levels. If tallow were up around 26 or 27 cents a pound, as it was a few months ago, importers say, the price of the olive oil foots would not appear to be so much out of line.

With edible olive oil bringing about $4 to $5 a gallon in the United States, Italian exporters are more interested in concentrating on the production and packaging of the edible product than using relatively expensive labor to ship foots selling for 21 cents a pound. There are no restrictions on exporting of consumer containers of olive oil from Italy, which is shipping olive oil in packages up to one gallon in size.

Other sources in the trade say that the U. S. import allocations of inedible olive oil, including foots and sulfur oil, will be met during 1948. The first foots to reach the United States arrived here during March. In the two months since then, it is understood, about one-quarter of our 1948 allocation of inedible olive oil has reached the United States. With only two months of the allocation's duration of one year expired, it is expected that the full 9,000 tons allocated to the U. S. will be shipped, this source insisted.

Greece is believed to have the largest exportable surplus of olive oil foots and will be largely responsible for our acquiring our full quota under the 1948 import allocation. Spain is not expected to ship much oil, unless the prices become more favorable.

One of the reasons for the increased production of olive oil foots, particularly in Greece, is the fact that during the war olive oil was used for fuel, particularly in the form of briqueted olive pumice, which contained the foots. Transportation difficulties limited or curtailed shipments from the olive producing regions to extractor plants and ports, from which the oil was shipped. The islands off the coast of Greece are sizable olive producing regions. During the war they were cut off from the mainland, and only now are beginning to re-establish pre-war contacts. With oil prices what they are, interest in increasing olive oil crops and production has been stimulated. The Philippines being an excellent example of the rapid recovery oil producing regions can experience under the stimulus of higher prices.

Before olive oil foots as a soap regain their former standing as a soap fat, a demand for products containing olive oil must be created. While olive oil scouring soaps were excellent for textiles such as cotton, wool and silk, because of the lapse of time since they were used on a large scale, their value has been almost forgotten. In addition, wide-spread changes in personnel in textile plant management and soap purchasing and formulating departments have been made in some cases. These new people, generally, younger than their predecessors either don't have the experience with olive oil soaps to appreciate their quality, or had too limited experience with them in the years before the war to remember them, is another explanation offered for the reduced interest in olive oil soaps. Such a condition is particularly evident, dealers state, in cases where firms who formerly ordered three cars of olive oil foots a month now order 10 drums a month for "experimental purposes." It is hoped that the re-entry into soap formulations of olive oil foots will grow with use.

With soap sales off the way they have been during the first few months of this year, the prospects of olive oil making a large-scale recovery as an important soap oil do not seem good. The condition is aggravated by the fact that consumption is limited to a few soap makers who take most of the oil brought in. If they are not interested in buying, the market is static.

Olive oil foots in the soap industry have had a checkered history. Since 1935 their use in soap has fallen steadily, with the exception of two years, 1939 and 1943, when consumption was greater than in the previous years. The bottom was reached in 1947, when 763,000 pounds were reported used in manufacturing soap. In 1935, 31,507,000 pounds of olive oil foots were reported used in soap making.

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Fatty acids or esters, or a mixture of the two, are catalytically hydrogenated to form alcohols at elevated temperatures and a high pressure in the presence of a copper-containing catalyst and a cadmium soap. The latter is present in a substantial amount, although less than the amounts of the materials to be hydrogenated. Procter & Gamble Co. British Patent No. 569,923.

SOAP ADVERTISING

By John R. Gilman *
Lever Brothers Co.

OUR present economy must be fully maintained and expanded. Advertising can do this by expanding the present volume of old established products and even by changing old established usage. The case in point I have is "Lifebuoy." When we concentrated on promoting "Lifebuoy" for bath with a potent selling theme, we ended up in making people take more baths. That expanded the market—which was good for "Lifebuoy," was also good for every other toilet soap. The entire field expanded.

Advertising can also find new uses for old established products. The example here is "Lux Flakes." "Lux" was originally brought out as a fine fabric soap. Then we featured "dish-pan hands," and added appreciably to the "Lux" volume. Interestingly enough, the whole field of package soaps soon expanded similarly.

Often it is found that the product should be improved so the advertising department can make this or that claim. A case in point is anti-sneeze "Rinso." Several years ago the advertising department, studying the figures made available by market research, realized that women really wanted something that would free them from sneeze annoyance, and they recommended that the product be changed. The product was altered and as a result, the public had a better product; the advertising department had a new, interesting and different campaign to which sales responded accordingly.

Advertising must inform employees. In this current age, it is important that big business carry with it its employees; that the employees be told why the business is operating the way it is; how advertising and every department of the business operates and how all are inter-related.

In the soap business, the picture is changing very decidedly. With us, it is the introduction of non-soap detergents. The soap industry could have lost the synthetic detergent business to other people but—and I can say this with no false modesty because I am speaking for the industry and not for Lever Brothers and certainly not for myself — the soap industry was alert enough to realize the challenge and to do most of the important research in the field. The result is that the soap industry is carrying the banner as far as non-soap detergents are concerned.

Now, we have to look into the future and try to discern what the pattern will be as between soaps and non-soaps. They both have minuses and pluses. We have to realize that the art of soap making is improving. We must come up with an answer and then go courageously ahead; not timidly stand back and say, "Well, of course, we don't know which way it is going or just how much of each, and therefore, we'd better turn on the yellow light and walk for a while." That would be absolutely fatal to us both as an industry and as an individual company, while the spread of such a philosophy would be fatal to us as a country.

At Cambridge, we started in by checking our formulas to see how they could be improved. Perhaps the most conspicuous example of utilizing scientific research was the introduction of the new "Rinso" with "Solium." That was an advertising man's holiday because instead of having to scratch and struggle to create something wonderful, it was handed to us on a silver platter; "Solium" gave the kind of results that are obvious.

Then, we can bring out new products, whatever our business. Lever is currently launching "Breeze" throughout the Central part of the United States. And we have several others waiting to be introduced.

We have restyled all of our packages. We asked designer Raymond Loewy to work with the advertising department to see what could be done to bring our packages into line with the modern world. We wanted them to have that "new look," to be thoroughly modern. We weren't afraid to change packages like "Rinso," or "Lux," which sold in hundreds of millions of packages yearly. Every product was studied and checked and is being changed to a lesser or greater extent. These changes are carefully checked in market research to see which are better than others and how they compare with the original packages as viewed by the housewife.

We have spent a great deal of money recently in testing both advertising copy and media. That is very important. Concurrently we reviewed every advertisement. We studied our criteria and changed our criteria. Naturally we held fast to basic principles, such as that advertisements must be believable, must be readable, must be simple. We had always believed in those things. Once we were ready to check our advertising and to challenge it, it was surprising how many advertisements were thrown out and how many were changed. It was also surprising to me how often I ran across words or phrases not in the vocabulary of the common man, which weren't necessary to tell the story and merely slowed it down. We did a lot of pruning on advertisements that previously we though were just about perfect. We were determined to have one idea in one advertisement. It

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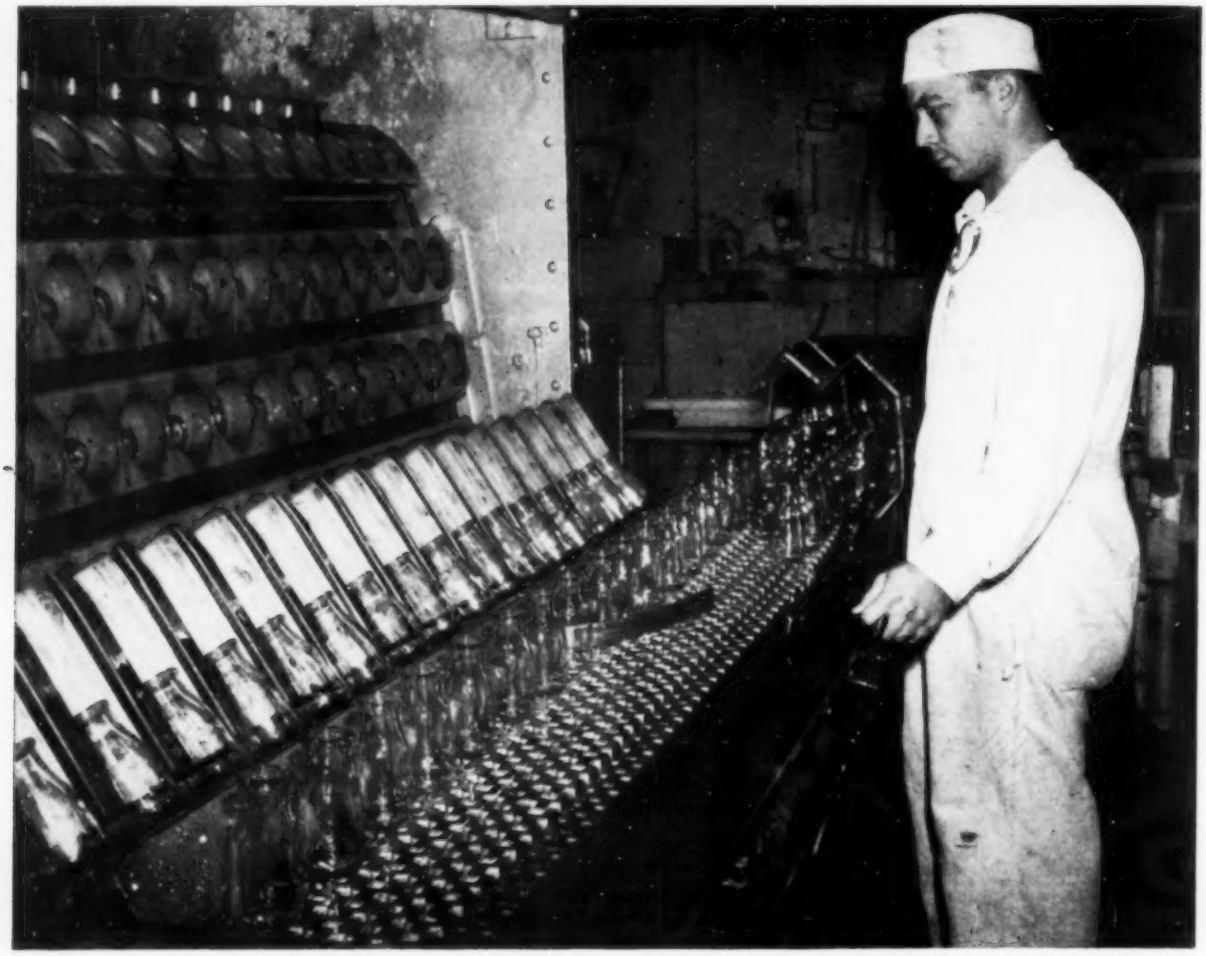
* Based on a recent talk at the Marketing Conference of the American Management Association, Hotel New Yorker, New York. Mr. Gilman is vice-president in charge of advertising.



—Photo courtesy The Borden Company

Empty milk bottles returned from the customer are fed into the bottle soaker where they go through several cleaning and sanitizing processes. Here the bottles are leaving the soaker on their way to be filled.

DAIRY CLEANERS

By Milton A. Lesser

MILK and milk products are among the nation's most essential foods. The dairy industry is vital to the health and growth of children. It is also a means of supplying young and old with a variety of pleasing and highly nutritious foods. Milk, however, is also a highly perishable commodity and there are few products which require more care in their procurement, processing and marketing. Today milk processors know that there is no better investment which pays off so well as money spent on good sanitation.

As remarked by Bryant, (1) every healthy cow gives clean milk and it is the job of the dairyman and milk processor to keep it clean. Fluid milk, the raw material of all dairy products, is highly susceptible to bacterial growth and is consumed by those most vulnerable to milk-borne organisms. The control of bacteria is the most important single factor in the processing of milk. (2) All codes for the sanitary production of milk are designed to control bacterial growth and to prevent contamination from human sources or unclean equipment.

It took a long time and much hard work before the vital importance of cleanliness and sanitation was appreciated by either the public or dairymen. Once understood, however, it has had far reaching effects on the nation's health. Because of the establishment of rigid standards and the strict insistence of their maintenance, such diseases as scrofula and cholera infantum are practically unknown to modern mothers. All too familiar a few decades ago, these milk-born diseases killed off many infants and

children, especially during the summer months.

When milk arrives at the dairy plant it goes through a number of treatments before being delivered to the consumer. Even if it is to be delivered in its fluid state, the milk will pass through various kinds of equipment like dump tanks, flow lines and fittings, hold tanks, surface coolers, pasteurizers, pumps and fillers. If it is to be processed further to yield cream, butter, cheese, ice cream or condensed milk, it must go through other, more specialized apparatus. All of this equipment, including connecting pipe lines and other conveyors, must be scrupulously cleaned and thoroughly sanitized. The cans in which the milk is brought to the plant and the bottles in which it is delivered to the home must receive like treatment. It is quite obvious that there is little purpose in stressing the sanitary production and processing of milk if it is to be placed in dirty containers.

The cleaning of dairy equipment has become one of the most important operations of the milk processing industry. In a well organized plant, "clean-up" should occupy 30 to 40 per cent of the time spent in daily operations. The importance of this daily routine is self-evident in the fact that an improperly cleaned or unsanitary piece of equipment may undo all the care taken in other milk-treating operations. All surfaces of equipment coming into contact with milk should be smooth and bright to facilitate cleaning. (2)

It has been emphasized (3) that dairy equipment should be cleaned with a suitable detergent before attempts are made to sterilize it. Chlorine solution, hot water or steam may be used for sterilization. During recent years certain surface-active agents, particularly quaternary ammonium compounds, have found growing use as sanitizers for the dairy industry. (4)

In discussing the modern approach to the cleaning of dairy equipment, Shogren (5) has pointed out that there are as many kinds of cleaning jobs in a milk processing plant as there are kinds of milk, milk products and equipment. Without attempting to give details on these various types of treatment, this authority devotes himself to a discussion of one important, but highly illustrative phase. He takes for his example the procedures used for cleaning the equipment which handles whole, fluid milk that has not been subjected to extremely high temperature. The basic procedure is as follows: (a) Immediately after the milk has been run, thoroughly rinse down and flush all equipment with cool or lukewarm water, (b) wash all equipment with a good cleaning compound and adequate fresh, clean warm water at about 125°F. All parts should be cleaned thoroughly with appropriate brushes that are in good condition. (c) Rinse thoroughly with boiling water. Flush all surfaces and store in a proper manner to permit free drainage and natural drying. (d) After the equipment has been reassembled and immediately before use, rinse thoroughly with a solution containing 200 p.p.m. (parts per million) of available chlorine.

The composition of a detergent used for cleaning dairy equipment is determined by the conditions under which it is to be used and the kind of work it is expected to do. Thus, an important consideration in detergent formulation is whether it is to be used in manual or mechanical cleaning procedures. The type of dirt to be removed is also a major factor in determining the amount and kind of ingredients to be incorporated in a detergent. According to Anderson, (6) the types of dirt to be tackled are: (a) Liquid milk films, (b) air dried milk films, (c) heat precipitated films, and (d) heat hardened films.

As in so many other cleaning procedures, the hardness of the local water supplies will have an important influence on the efficiency of a dairy equipment detergent. Indeed, some authorities (7, 8) put water softening ability as one of the prime requisites of a dairy plant cleaner. This is quite understandable when it is realized that calcium, magnesium and other hard water salts are intimately associated with the formation of milkstone. Milkstone is a mineral deposit of insoluble salts combined with casein precipitated from the milk by heat. It is always present in equipment and utensils that are not cleaned properly and is very difficult to avoid in hard water areas.

Equipment is not sterilized in the "clean-up" if milkstone is present. Since it protects them from chemical and heat sterilization, milkstone affords an ideal place for the growth

Before each milking the cow's udders are thoroughly washed and dried.

—Photo courtesy The Borden Company

and multiplication of bacteria. (2) In addition to being responsible for high bacterial counts, milkstone retards the heating and cooling of milk and may be a source of off-flavors. Thorough cleaning with the proper detergent is necessary to avoid milkstone formation. Special compounds to remove these deposits are also available.

In passing it may be mentioned that European investigators (9, 10) have found that the use of unsuitable detergents may be responsible for off-flavors in milk and butter.

ALTHOUGH, as yet there is no universal detergent for cleaning dairy equipment, a number of workers (11, 12) have expressed views on what is expected of such products. Piper, (8) for example, feels that dairy plant cleaners should possess good water softening properties, high wetting ability, efficient emulsifying action, and free rinsing characteristics. Minor's (7) criteria for selecting dairy detergents are more detailed. In his opinion, a satisfactory product is one that: (a) Softens the water, (b) prevents precipitation of water minerals which build film and scale formation, (c) increases the wetting ability of the water, (d) dissolves or softens the milk residues so that they can be removed, (e) does not corrode the metal surfaces of the equipment, (f) does not attack the hands if it is to be used in manual cleaning, (g) is nontoxic, (h) does not encourage the development of off-flavors to dairy products, and, (i) is economical to use.

For a long time, caustic soda, soda ash, washing soda, sodium metasilicate, trisodium phosphate and sodium hexametaphosphate, used alone and in mixture with themselves and other substances, constituted the materials used as detergents in the dairy industry. (13) These compounds have many excellent properties and are of basic importance in solving cleaning problems and in compounding detergents. Conversely, they possess certain deficiencies such as poor rinsibility, poor suspending properties and poor wetting ability. (5) Some are corrosive to certain materials. For example, it is said (14) that caustic alkalis should not be used for can washing because they are too corrosive to tin.

Very often these individual disadvantages can be overcome by the use of suitable combinations. Thus, in a mixture of this sort, soda ash may be employed to cut the fat, trisodium phosphate is used for softening the water and silicates are used for giving a bright appearance to the equipment. (15) In building up a compound detergent, silicates may be included because they exert a protective action against corrosion and to some extent with respect to scale deposits. (6) The protective action of silicate and phosphate or their combinations on aluminum is quite well established. (16) According to Ray, (17) metasilicate is preferable to orthosilicate, which is more alkaline, in making dairy cleaners.

In recent years, polyphosphates with improved sequestering action have become available. Added to dairy detergents, they help to prevent scale formation in hard water areas. The use of surface active agents or synthetic detergents has often improved the wetting properties of these cleansers.

FORMULAS for making the widely used alkaline type of dairy equipment detergents are available in technical reports and publications. Illustrative of the simple types of products recommended (18) years ago and still important today is the following cleanser for various kinds of dairy equipment:

Trisodium phosphate	60 per cent
Sodium carbonate	40 " "

This may be contrasted with the following general purpose dairy cleaner given in a recently published text: (19)

Sodium carbonate	46 per cent
Sodium metasilicate	46 " "
Trisodium phosphate, monohydrated	8 " "

More complex, but perhaps giving more rounded, balanced action, is the formula listed by Bennett (20) as follows:

Sodium carbonate	5 parts
Trisodium phosphate	20 "
Sodium metasilicate	65 "
Sodium hydroxide	5 "
Sodium aluminate	5 "

In the formula below, describing a cleanser for milk vessels, sodium sulfite is included as a corrosion inhibitor. This substance is said (20) to reduce the rate of attack of sodium carbonate and caustic soda on milk containers made of tinned copper.

Ammonium carbonate	50 parts
Caustic soda, powdered	5 "
Sodium metaphosphate	5 "
Sodium metasilicate	10 "
Trisodium phosphate	15 "
Sodium sulfite	15 "

Although it does not appear to be a common ingredient of dairy equipment detergents, soap is sometimes included in general dairy utensil cleaners. Such employment is illustrated in the formula below:

Sodium carbonate	30 parts
Sodium metasilicate	50 "
Sodium hydroxide	6 "
Soap	14 "

From time to time, attempts have been made to combine the sanitizing action of chlorine with the detergent effects of alkalis. One such effort is illustrated in the following dairy detergent (20) containing a chlorine-releasing ingredient:

Sodium carbonate	40 parts
Trisodium phosphate	35 "
Sodium silicate solution	10 "
Caustic soda, powdered	5 "
Sodium sulfite	7 "
Chloramin	3 "

Simple combinations of various proportions of sodium hydroxide and sodium carbonate are used as milk bottles and dairy glassware cleaners. Worth noting in this connection is Layson's (21) observation that high alkali concentrations in a bottle washer etch the bottles and make them useless. In a report on the cleaning and sterilization of milk bottles, Hobbs and Wilson (22) stated that virtual sterility can be achieved by the use of relatively strong sodium hydroxide solutions (1.14 to 2.44 per cent) at low temperatures or relatively weak solutions (0.3 to 0.66 per cent) at high temperatures. The addition to the caustic soda of substances such as sodium metasilicate, trisodium phosphate and sodium hexametaphosphate is highly recommended. These additions, which increase the wetting, softening, emulsifying and deflocculating actions of sodium hydroxide, help to remove micro-organisms.

A bottle and glassware washing preparation which utilizes such an addition consists of:

Sodium carbonate	25 parts
Sodium metasilicate	10 "
Sodium hydroxide	65 "

A milk bottle washing composition that is especially useful for washing machines may be made by melting together the following materials:

Sodium carbonate	3 parts
Sodium metasilicate, anhydrous	4 "
Trisodium phosphate, anhydrous	6 "
Sodium hydroxide	87 "

In dairy plants where soaker-washer machines are available for cleaning milk bottles, a combination like the following may be employed:

Sodium carbonate	20 parts
Trisodium phosphate	15 "
Sodium hydroxide	65 "

THE newer polyphosphates, like tetra sodium pyrophosphate and sodium tetraphosphate, as was previously mentioned proved very advantageous in overcoming difficulties due to hard water. Mixtures of these types of phosphates with compatible alkali salts yield satisfactory dairy detergents and are especially effective in eliminating milkstone and scale formation. (23) As noted by Piper, (8) the use of these phosphates in the soaker type bottle washer will aid greatly in eliminating lime deposits and preventing their formation. He also notes that the newer polyphosphates tend to keep the magnesium and calcium salts in non-active solution. This holding up or sequestering of the water hardening salts is a very important characteristic of a good washing compound because it permits more efficient usage of the cleaning properties of the chemicals. Another advantageous property of the polyphosphates is their ability to remove previously formed deposits of carbonates and silicates. This property is especially valuable where the use of acids and other lime solvents is impractical or impossible.

According to one manufacturer's literature, (24) a mixture of 25 per cent of tetra sodium pyrophosphate and 75 per cent of trisodium phosphate is more effective than a straight trisodium phosphate as a dairy cleaner. Tetra sodium pyrophosphate is said to be particularly effective because of its emulsifying action on casein and butter fat.

The use of the newer phosphates is also illustrated in John's (25) well-rounded formula for a dairy utensil cleaner.

This consists of:

Powdered soap	8 lb.
Soda ash	10 lb.
Sodium metasilicate	50 lb.
Trisodium phosphate	50 lb.
Sodium tetraphosphate	8 lb.
China clay	10 lb.

Patented processes (26) for making detergent briquets suitable for use in machines for washing milk cans, bottles and the like take advantage of the properties of some of these phosphates. According to one quite recent patent, such briquets may be compounded from sodium tripolyphosphate, trisodium phosphate, soda ash or both, and sodium silicate. In all of these patents, it is suggested that various surface active agents may be included to enchance the cleansing action and to improve rinsing.

Surface acting agents are finding growing use in the cleaning and sanitizing of dairy equipment. Some of these compounds are valued for their detergent properties while others are assuming importance because of their anti-bacterial action.

Several years ago, Scales and Kemp (27) discussed the possibility of employing the physical action of organic detergents in dairy equipment cleaning instead of the chemical action of alkalis. They stated that combinations of alkaline detergents and organic detergents could be made to fit definite cleaning jobs. Many surface active agents are now available. Some of these synthetic compounds especially certain anionic detergents, are particularly suitable for dairy plant use. Providing good cleansing action, they are effective in hard or soft water and thus do not pose the problem of milkstone or scale formation.

McCulloch, (28) for example, has found that faster and better results are obtained through the use of solutions containing mixtures of sodium hexametaphosphate and one of the newer anionic detergents.

CONSIDERABLE interest has been focused upon the use of surface active agents, especially the cationic quaternary ammonium compounds, as sanitizers for dairy equipment. Some of these compounds possess remarkable bactericidal powers (28) as well as low toxicity and marked freedom from irritation tendencies. One of them, benzalkonium chloride (alkylbenzyl dimethyl ammonium chloride) has been admitted to the new U.S.P. XIII. It is used to make antibacterial solutions that may be applied to the skin, denuded areas, mucous membranes and the eyes. A number of preparations containing this compound are available commercially for sanitation and disinfection purposes. Benzalkonium chloride and related surface active agents have been studied extensively to determine their usefulness as sanitizers for the dairy industry. In 1941, Scales and Kemp (29) reported that a number of wetting agents adjusted to pH4 showed germicidal properties superior to the alkaline sodium hypochlorite solution commonly used for sterilizing. Their data indicated that the acid solutions of wetting agents were much less corrosive than the hypochlorite solution and that they could be prepared at lower cost.

In contrast to these findings are the observations made by Johns. (30) He compared the germicidal speed of four quaternary ammonium compounds with that of two hypochlorites against a number of bacteria, including cheese starter organisms. Against Gram-positive species, the quaternary compounds were generally more effective than the hypochlorites, but against Gram-negative species, the reverse held true. It was found that the hypochlorites responded much more readily to favorable adjustments in pH and temperature than did the quaternary ammonium compounds.

Very significant with regard to the usefulness of these compounds as dairy sanitizers is the report of Mueller, Seeley and Larkin, (4) recently published in *Soap and Sanitary Chemicals*. Working with alkyl dimethyl benzyl ammonium chloride and a dialkylaryl ammonium chloride, they found that properly washed milk pails

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SODIUM PYROPHOSPHATE

John R. Skeen
Foster D. Snell, Inc.
Market Research Department

FOR the making of soaps and cleaners, sodium pyrophosphate has become the most important of the eight commercial sodium salts of phosphoric acid. Perhaps no more than 60 percent of the demand was filled for other than military needs and exports during the years 1942-46. With the large imports of cocoanut oil that began late in 1946, the abnormally great need for sodium pyrophosphate decreased. Presently, this chemical is in adequate supply, a situation which will probably obtain throughout 1948.

There were four major causes of the shortage of pyrophosphate during war years: diversion to military needs, virtual cessation of cocoanut oil imports, the extraordinary increase in industrial activity, and the limited availability of phosphoric acid.

The military required the chemical for the production of synthetic rubber and high octane gas, water treatment for marine and stationary boilers, the cleaning of metals for combat vehicles and airplanes, and as a detergent for military kitchens. In addition, an indirect military need was for controlling the viscosity of liquids or "muds" in oil well drilling. Probably as much as 25 percent of production was consumed in military uses which were satisfied in full. Sodium pyrophosphate was established by 1941 as a "builder" in household package soaps, as an additive to industrial and home cleaners and cleansers, and as a wetting-out and scouring assistant in the textile industry. The higher level of industrial activity induced by the war increased the demand for the compound for use in detergents.

Perhaps the greatest stimulant to demand was caused by the cessation of imports of quick-lathering, hard oils. Thus, from a level of 770 million pounds in 1941 imports of cocoanut oil (and oil from imported copra) dropped to 130 million in 1942. Factory consumption of all lauric acid oils was only 222 million pounds in 1942 as compared with 770 million in 1941.

The ability of sodium pyrophosphate to increase the lathering properties of soap without raising the alkalinity made it of greater importance than ever. However, there was little available.

In order to conserve the limited supply, sodium pyrophosphate, along with sodium metaphosphate and tripolyphosphate, were placed under complete allocation July 1943 (G. P. O. M-334). Allocations were based upon use and all military and export requirements were supplied. What was left over went to the civilian economy at a time when the need was greater than ever before.

As phosphates derive from phosphoric acid, and, for the most part, phosphoric acid originating from elemental phosphorus, the production of pyrophosphates depended largely upon the availability of elemental phos-

SODIUM PYROPHOSPHATE AND THE SOURCE OF SUPPLY

	Production 100lb 3	Sodium Pyrophosphate Approximate Use—1000lb 2 Soaps-Cleaners 4	Other Detergent 5	Miscellaneous 6	Price c/lb, f.o.b.7	Phosphoric Acid, 50%—Production 1 million pounds Total	from Phosphorus 8	from Rock 9	Phosphorus capacity million pounds 10
1936	8000	6800		1200	7.9				62
7	20576	17500		3076	7.5	11			120
8	45000	40000	1600	3400	5.3				107
9	97382	81500	3800	12082	5.100	750.4	n.a.	n.a.	124
40	88500	76700	3600	8200	5.100				128
1	98576	84500	5600	8476	5.103	1325.3	599.1	726.2	148
2	87746	74500	4050	9196	5.250	1234.8	577.9	656.9	166
3	72074	60750	2950	8374	5.250	1273.7	571.1	702.6	167
4	77514	63760	3100	10654	5.250	1393.1	613.8	779.4	176
5	86894	72100	4900	8894	5.250	1461.9	729.7	732.2	176
6	104298	84000	6500	13798	5.250	1801.4	892.1	909.3	186
7	112338	88300	7000	17038	5.97	2079.2	1110.4	968.2	200
8	....	....	....	....	....	....	....	....	236

1 1939, *Statistical Abstract of the U.S.* (1943); 1941-45, *Facts for Industry*, series M19A—supplement; 1946-47, ibid, series M19A.
2 reconstructed from trade announcements and surveys made 1940 & 1943; 1944, *Facts for Industry*, series 6-8
3 1937, Chemical Unit, Bureau of Foreign Commerce & Navigation; 1939, 1941-45, *Facts for Industry*, series M19A—supplement; 1946-47, ibid., series M19A.
4 soaps, cleaners, dish-washing compounds
5 to clean metals, rugs, textiles, etc.
6 includes use in oil well drilling (mud viscosity control), boiler water treatment, production of magnesium, production of opalescent glass; also includes factory stocks.
7 1939-1946, Bureau of Labor Statistics; 1947, *Oil, Paint & Drug Reporter;* 100lb bags, f.o.b., works; 1936-38 prices are approximations and may be low by 10%
8 signifies production from elemental phosphorus, phosphoric anhydride and phosphoric acid as derived from "dry" (or furnace) process
9 contrasts with (8)—phosphoric acid from rock phosphate by the "wet" process
10 furnace (or dry process) elemental phosphorus, phosphoric anhydride and acids as recovered, expressed in terms of elemental phosphorus.
11 *Census of Manufacturers* reports "production for sale", a value not comparable with "total production"

phorous and its disposition to other chemicals.

Capacity to produce phosphorus was close to 128 million pounds in 1940. In 1944 capacity became 176 million pounds. However, during the years 1942-45, military requirements and exports accounted for over 60 million pounds a year almost entirely for tracer bullets, incendiary bombs and signal flares. In addition, more phosphorus was needed to make phosphorous oxychloride for phosphate esters, phosphorous pentoxide for the acid esters, and phophoric acid for making the sodium, potassium, ammonium, calcium and metal salts for the widest industrial distribution. In spite of greatly increased production, the amount of phosphorus available for producing the acid was slightly less in the years 1942-44 than in 1941. Sodium pyrophosphate was made to as large an extent as was possible, but production as a result suffered from competition with other chemicals for the limited and inadequate supply of phosphoric acid. The result was capricious.

The end of hostilities saw the soap and detergent demand supplied in increasing amount. But not until coconut oil was once again available late in 1946 did the urgency of the demand abate.

Thomas Clark of Edinburgh made sodium pyrophosphate in 1827. Commercial production began in the United States about 1923 by Monsanto Chemical Company. Price was 16¢ per pound. The chemical remained something of a commercial curiosity until about 1934. Then it was recognized that pyrophosphate increased the lathering properties of soap and cleaners and was effective in the prevention of calcium deposits. Sales expanded rapidly. Victor Chemical Works began production and was followed by du Pont (1938), Blockson Chemical Co. and A. R. Maas Chemical Co. (1940). By 1941 there was a total of seven producers. The chemical was introduced in the soap and detergent field in competition with the older silicates, phosphates, borax and soda ash. As a "neutral" and "permanent" suds pro-

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Year Round Employment in the Soap Plant

By Richard R. Deupree
Procter & Gamble Co.

Steady employment in the soap plant, generally regarded as desirable, although difficult, is not impossible to achieve, according to a recognized authority on the subject and a man who for many years has operated at least 48-weeks' a year employment to the qualified people working for his company. It is economical in operaton, too, he states and is desirable from the standpoint of the worker, the employer and the country. —Ed.

R. R. DEUPREE

OVER 25 years ago we found out that our soap products were consumed fairly evenly throughout the year. But our products were not purchased evenly, nor did we manufacture steadily. We decided that goods consumed evenly throughout the year could be produced evenly. It took some time to work out the solution, mainly because the sales department had to accept the premise of uniform production and really cooperate to make the plan successful. I know for I was general sales manager at the time.

It was costly at first, but William Cooper Procter, then our president, insisted on it because he felt that a steady job was the most important thing in every employee's life. That was way back in 1923 and the plan has been in operation ever since. Since that date, not a single employee who came under the Guaranteed Employment Plan has been laid off because of lack of work.

I am not saying that production can be exactly matched to consumption; but I do say, with commodities like ours, production can be set on a monthly or six months schedule to meet approximately the consumption demand; and we have done it.

Our plan, which has been in effect since 1923, is very simple in its concepts and administration. In effect we guarantee a worker forty-eight weeks' work in the calendar year, provided he wants to work and is willing to take any job that we can give him. The employee's pay is controlled by the rate which covers the specific job on which he is working. An employee is eligible for this plan after he has worked for the company for two years; not when he comes in. In other words, there is a two-year probation period wherein the company can get acquainted with the man and the man with the company. If he is with us for that period, then he is assured forty-eight weeks work in a given year, based upon the standard work week at whatever plant he is employed.

I think you can reason very quickly from this statement that our guarantee applied to approximately 70 percent plus of our employees. With the two years' service requirement and the very natural coming and going of workmen, we know about 70 percent of our force will be steady so that immediately our responsibility for steady jobs is limited to less than three-fourth of our employees. Fortunately for us, once the plan was established, we have been able to operate even through the depression and the war on a fairly even basis; so

(*Turn to Page 155*)

TRADE NEWS. . . .

Joins U. S. Testing

Benjamin S. Van Zile, formerly chairman of Committee D-12 on soaps and other detergents of the American Society for Testing Materials, and previously a member of the research staff of Hercules Powder Co., Wilmington, Del., has joined United States Testing Co., Hoboken, N. J. He is connected with the sales-service division and will do contact and consulting work in detergents specifically and chemical testing generally. Before joining Hercules Powder Co., where he was connected for five years, Mr. Van Zile was with Colgate-Palmolive-Peet Co., Jersey City, N. J. for 12 years. At Colgate, he was supervisor of the research, analytical and technical service divisions of the research and development department. A graduate of Brooklyn Polytechnic Institute, where he received a B.S. degree in chemistry, Mr. Van Zile served in World War I as a sergeant-major in the infantry.

New Hand Cleaner

A new borax based, powered hand cleaner known as "Dispensoap" was introduced recently by Rossaul Co., New York. The product is especially recommended for difficult stains such as those resulting from handling grease, ink, vegetable dyes, etc. Said to be completely soluble in water, the new hand cleaner comes packaged in 100 and 300 pound drums. Four ounce samples are available on requests written on company letterheads.

Heads Drackett Co.

Roger Drackett was recently elected to succeed his late father, Harry R. Drackett, as president of Drackett Co., Cincinnati chemical products firm. At the same time it was announced that King H. Jones had been named vice-president and secretary, in charge of finance for the company. Roger Drackett joined the firm in 1934 after receiving a masters degree from Harvard Business School. He

ROGER DRACKETT

concerned himself mainly with the development of new products in all of the company's departments until 1941, when he was appointed assistant to the president. His father, who at one time had been with Procter & Gamble Co., Cincinnati, died Mar. 5.

Open Ayer Paris Salon

The Paris opening, April 16, of a new half-million dollar beauty salon of Harriet Hubbard Ayer, Inc., Lever subsidiary was marked by a luncheon at the Hotel Ambassador, New York, attended by 200 prominent Franco-Americans, business leaders, press representatives and officers and directors of Lever Bros. Co. Charles Luckman, president of Lever Bros. Co., spoke at the luncheon, urging the importance of international cooperation and mutual understanding to raise the living standards of the entire world and thus ensure peace.

Soap Co. Joins TGA

Wolf Creek Soap Co., Dayton, O., was recently voted to membership in the Toilet Goods Association.

Detergents Safety Factor

The role of synthetic detergents in promoting safety and sanitation was described by Lawrence H. Flett, director of the new products division of National Aniline Div., Allied Chemical & Dye Corp., New York, at a meeting of the Greater New York Safety Council, April 15. Two useful properties of synthetic detergents are their ability to clean quickly and effectively, even when small amounts are used with great quantities of water. In addition, their high bactericidal action will be a help in correcting the incidence of disease, Mr. Flett stated. By making cleaning easier, more cleaning will be done.

Among the ways in which the application of synthetic detergents is helping safety are washing dishes thoroughly; washing of highways to remove grease, grime, oil, etc.; eliminating the danger of slippery surfaces that sometimes follow normal washing methods; cleaning automobile windshields with greaseless detergents.

C-P-P 1st Quarter Earnings

Colgate-Palmolive-Peet Co., Jersey City, N. J., in making its quarterly report on earnings for the first three months of 1948 shows a net income of $3,802,884, equal to $1.85 a common share, which includes domestic net income of $3,452,884 and dividend income from foreign subsidiaries of $350,000. World wide sales of the company totaled $78,127,561, comprising domestic sales of $59,407,527 and sales of foreign subsidiaries (not consolidated) of $18,720,034. Because this is the first quarterly report, no direct comparison with 1948 is possible. However, for the six months ended June 30, 1947, Colgate-Palmolive-Peet Co. had a net income, including $1,100,000 in reserve for inventory price decline, of $9,783,002. Sales totaled $132,306,711.

A Sparkling Floral Trio

Velvetine will impart sparkle and brilliance to most any blend, adding a touch of charm and distinction without changing its general characteristics. *Iso Cyclo Citral-S* imparts a genuine lush green note. Its clean, refreshing odor makes it the perfect masking agent. *C-66* lends an appealing crispness wherever Lily-of-the-Valley is an important constituent. Its Muguet character is considerably more intensive than Hydroxy Citronellal, and produces very interesting effects. ◇ These three new specialties enhance the finest perfumes, yet are well within reach of the soap perfumer. ◇ A request on your company letterhead will bring working samples and complete information.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

DOW

Aromatics

INDISPENSABLE TO THE CREATIVE PERFUMER

Werner To BNF Board

William G. Werner, manager of public relations and director of consumer information for Procter & Gamble Co., Cincinnati, was elected to the board of directors of Brand Names Foundation, Inc., New York, at the group's annual business meeting at the Waldorf-Astoria Hotel, New York, Mar. 30. F. W. Specht, president of Armour & Co., Chicago, was also elected as a director. Gavin MacBain, treasurer of Bristol-Myers Co., New York was reelected treasurer of the Foundation.

Mr. Werner has been with Procter & Gamble since 1911. In 1939, he was appointed manager of the advertising division. Three years later Mr. Werner was advanced to his present post. He is also chairman of the publicity and public relations committee of the Association of American Soap and Glycerine Producers and serves as vice-president of the American Fat Salvage Committee. In addition, Mr. Werner is president of the United States Trade Mark Association; is a member of the public relations advisory committee of the Grocery Manufacturers of America, and a member of the National Cotton Council Advisory Committee.

WILLIAM WERNER

Buys Wyandotte Stock

Sale of minority holding in stock of Wyandotte Chemicals Corp., Wyandotte, Mich., to Solvay American Corp., American affiliate of Solvay et Cie. of Brussels, Belgium, was announced Apr. 7. In making the announcement E. M. Ford, Wyandotte president stated that the sale, making the Solvay investment in the company about $18,000,000, will go toward helping to finance Wyandotte's $25-000,000 expansion program. The relationship between the two companies is simply one of an investment nature, Mr. Ford stated.

Acquires Rendering Plants

Farmers Union Livestock Association, South St. Paul, Minn., began operation recently of the 12 rendering and feed manufacturing plants recently acquired by purchase from their former owner, Central By-Products Co., Redwood Falls, Minn. Over 75 per cent of the output of the 12 plants, derived from dead animals and from locker plant offal, will be manufactured into livestock feed for members of the livestock organization. Other by-products, including grease for soap making, will be disposed of in commercial channels. Joe Pistulka, general manager for Central By-Products Co., remains as manager for the new owners and the main office will be continued at Redwood Falls, Minn.

Former P. & G. Man Dies

Stanley Mazur, formerly a power department employee of the Procter & Gamble Co. plant in Port Ivory, Staten Island, N. Y., died Apr. 7, at his home in Elizabeth, N.J., after a lengthy illness. His survivors include his widow and two married daughters.

Cos. Chems. Weigh Library

Formation of a committee, with Edward Sagarin of Givaudan-Delawanna, Inc., New York, as chairman, to study the possibilities of setting up a central library of books, periodicals and general information relating to the science and art of cosmetics and perfumery was announced during March by the Society of Cosmetic Chemists. Other members of the committee included Frederick J. Rowse of the technical staff of Norda Essential Oil & Chemical Co., New York and Florence W. Wall, consulting chemists and author and lecturer.

Buys Harkness & Cowing

Arnold, Hoffman & Co., Providence, R. I., announced Apr. 8 the acquisition of the business of Harkness and Cowing Co., Cincinnati, producers of stearic acid, red oil and crude glycerine. Harkness and Cowing will be operated as a division of Arnold, Hoffman and there will be no changes in personnel, according to the announcement. Wilder H. Haines, formerly a director of Harkness and Cowing has been elected a director of Arnold, Hoffman; Rufus A. Healy and Clarkson Taylor have been elected vice-president and assistant treasurer, respectively.

The acquisition of the 93-year old company will enable Arnold, Hoffman to improve its service in the middle west. The new division will increase its production of fatty acids and will soon produce other chemicals for its mid-western customers, according to the company announcement.

Marble-Nye Co., Boston, who have handled the sale of red oil for Harkness and Cowing in the New England area will continue to operate under the new set-up.

Honor "Amami" Shampoo

"Amami" shampoos, hair preparations and toiletries for the skin, first produced in 1831 by Prichard & Constance (Amami), Inc., Bloomfield, N. J., were among 26 brand name products manufactured in the New York area cited with a Brand Names Foundation "Certificate of Public Service" at the second annual Brand Names Day at the Waldorf-Astoria Mar. 30. A Centennial "Certificate of Public Service" for 117 years of public service was presented to Arthur A. Starin, advertising manager, Beechams Pills, Inc., on behalf of the brand name "Amami".

Johnston Joins Lukens

Glenn E. Johnston, previously a special representative of Jessop Steel Co., Washington, Pa., has joined Lukens Steel Co., Coatesville, Pa., as a member of its sales development staff. Mr. Johnston will specialize in sales development work on Lukens clad steels.

ORONITE CHEMICAL COMPANY

REG. U. S. PAT. OFF.

THE NAME TO WATCH IN CHEMICALS

D-40 DETERGENT GIVES MORE SUDS AT LOWER COST

D-40 Detergent is economical to use. It has exceptional surface active properties and high foaming ability in low concentration.

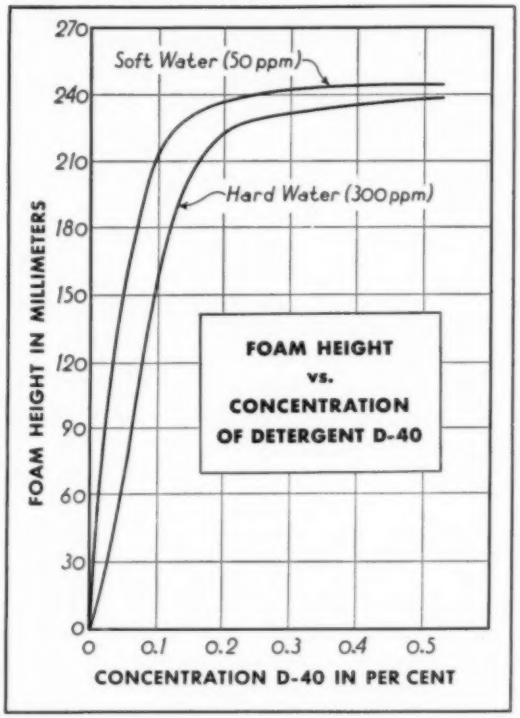
Here is a detergent that can be easily and economically blended with other materials. D-40 is an excellent cleaner by itself, improves other cleaners and gives better performance.

This neutral product is not harmful to delicate fabrics . . . gives quicker "break" . . . easier rinsing.

For more detailed information contact one of the offices listed below.

TESTS SHOW GREATER FOAMING PROPERTIES

The outstanding foaming ability of D-40 Detergent is shown by results of foam height tests (Ross-Miles method) in 300 ppm hard water and 50 ppm soft water at 110° F.



D-40 Detergent also shows increased resistance to defoaming in the presence of fats and oils. It is compatible with alkali, acid, soaps, oils, sulfonates and inorganic salts. Good foaming ability is shown with concentrations of D-40 as low as 0.2 percent.

This outstanding product can help you get better results in all cleaning and washing operations. Ask for D-40—by Oronite.

ORONITE CHEMICAL COMPANY

200 BUSH STREET, SAN FRANCISCO 4, CALIFORNIA
STANDARD OIL BLDG., LOS ANGELES 15, CALIFORNIA
30 ROCKEFELLER PLAZA, NEW YORK 20, NEW YORK
600 S. MICHIGAN AVENUE, CHICAGO 5, ILLINOIS

TGA Meets in New York, May 18-20

THE 13th annual convention of the Toilet Goods Association, running for three days (Tuesday, Wednesday and Thursday, May 18-20) this year has as its theme: "The Outlook for Cosmetic Sales in Competition for the Consumer's Dollar." Two sessions of the meeting are devoted to an exploration of what lies ahead for the industry. Representatives of department, chain and syndicate stores are scheduled for talks on what is ahead for the toilet goods industry, as are spokesmen for the wholesale and the independent druggist. In addition, the future as seen by an economist is to be discussed by J. Baker of the Econometric Institute, Inc., New York. The final day of the meeting is listed as a scientific session.

The meeting opens Tuesday morning, May 18, at which time reports of the president, Paul H. Douglas of Bourjois, Inc.; the executive vice-president, Stephen L. Mayham; counsel, Hugo Mock, and the director of scientific research and standards, H. D. Goulden, are progammed. Following these reports, which are slated to begin at 10:00 a. m., the election of officers for the coming year is being held. At luncheon on the first day, the presentation of the Charles S. Welch Award by Joseph Keho, of Dorothy Gray, Ltd., New York is the feature. At the afternoon session on May 18 the convention theme is to be considered. J. Baker is the first speaker and followed by representatives of various types of stores and store groups. L. C. Shockley, toilet goods buyer for McCory Stores Corp., is listed to speak at this session as a syndicate store representative.

On Wednesday morning the convention theme is being further discussed from the standpoints of the wholesale duggist and the independent drug store operator. Charles T. Lipscomb, Jr., vice-president and sales manager of McKesson and Robbins, Inc., New York, is speaking for the wholesaler, while Zachary Druss of White Plains, New York, is talking for the independent druggist. They are followed by Dr. Howard W. Haggard, director, Laboratory of Applied Physiology, Yale University, who discusses the "T. G. A. Research Program," and John P. Currie, Currie & Gherman, New York labor relations counsel, whose topic is: "Labor Relations in the Cosmetic Industry." After luncheon on Wednesday, a closed meeting for manufacturers only is being held.

The final day of the convention, Thursday, May 20 is exclusively for the Scientific Section of the T.G.A. The following papers are scheduled to be presented: "Methods of Testing Irritant Properties of Soaps Upon the Skin" by J. A. Killian and M. E. Marsh, Killian Research Larboratories, Inc., New York; "Non-Ionic Detergents" by George E. Barker, Atlas Powder Co., Wilmington, Del.; Structure and Synthese in Prefume Chemistry" by Victor G. Fourman, Syntomatic Corp., New York; "Trends in Toilet Preparations" by Dr. E. C. Merrill, Rexall Drug Co., Boston; "Colorimetric Determination for Small Amounts of Sulfur by a Modified Gutzeit Procedure" by Santy M. Croce, Coty Products Corp., New York; "Bacteriostasis and Its Application to Toilet Goods Products" by Arthur R. Cade, Givaudan-Delawanna, Inc., New York; Commercial Stearic Acids and Organic Stearates" by Robert F. Brown, Emery Industries, Inc., Cincinnati, and "Consistency of Petrolatums" by Hans J. Miller and Martin Ganzler, Chesebrough Manufacturing Co., Brooklyn.

Chairman of the program committee for the convention is Norman Dahl of Prince Matchabelli, Inc., New York, and Karl Voss of Karl Voss Corp., Hoboken, N. J. is in charge of the committee on arrangements.

Port Sunlight 60 yrs. Old

The diamond jubilee of Port Sunlight, plant of Lever Brothers & Unilever, Ltd., Cheshire, England, was observed recently. Port Sunlight was inaugurated in March, 1888 by the late Lady Lever, a development which led to the establishment of the model village and industrial center.

Army Finds Copra Too High

Rejection of copra bids because they were too high was announced late in April by the U. S. Army, Washington, D. C. Earlier in the month the Quartermaster Corps had announced that it would consider offers on lots of not less than 1,000 long tons of copra.

Cosmetic Chemists to Meet

A varied program dealing with cosmetic raw materials, uses and test methods has been arranged for the semi-annual meeting of the Society of Cosmetic Chemists, scheduled for Wednesday, May 19, at the Hotel Biltmore, New York. John A. Killian of Killian Research Laboratories, Inc., New York, is program chairman.

Registration and a short business meeting will be held from 9:00 to 10:30 A. M. Subsequently three papers will be presented. The first paper will be "Correct Scenting of Cosmetics" by A. L. Van Ameringen of Van Ameringen-Haebler, Inc., New York; the second will be "Your Share of the Responsibility for Product Claims" by William L. Hanaway of Breed, Abbott & Morgan, New York and the third, by Joseph H. Morton, M.D., will be "Uses and Abuses of Hormone Creams." Following luncheon at 1:00 P. M., five additional papers will be presented: "The Literature of Cosmetics and Beauty Culture" by Florence E. Wall; Methods of Testing a Germicide Incorporated in Soap" by Eugene F. Traub, M.D.; "Application of Radioactive Tracers to Dermatological Problems," by Richard K. Thoms of E. R. Squibb & Co., Brooklyn; "Active Ingredients, So-Called in Cosmetic Preparations" by Herman Sharlit, M.D. and "Technological Aspects of Lanolin by Ivar Malmstrom of N. I. Malmstrom & Co., Brooklyn.

A short business session will follow the afternoon session and conclude the meeting.

THOMAS S. NICHOLS

J. C. LEPPART

Mathieson Elects Nichols

The election of Thomas S. Nichols as president and chief executive officer and the naming of John C. Leppart as vice-president of Mathieson Chemical Corp., New York, was announced Apr. 10. George W. Dolan, formerly president was elected chairman of the board and A. U. Fox, former chairman, resigned. All other officers were reelected.

Both Mr. Nichols and Mr. Leppart were previously connected with Prior Chemical Co., New York, as vice-presidents. Mr. Nichols a director, had been with Prior since 1937. Earlier, he was was with du Pont. Shortly after Pearl Harbor, he joined the government Chemicals Bureau, later a part of the War Production Board. He was loaned by the WPB to the State Department, where he became a permanent member of the Harriman Mission to London. When he returned to the U.S., he was made chairman of the Sulfuric Acid Operating Committee dealing with TNT and other war products. In 1945, Mr. Nichols went back to Europe as a member of the Technical-Industrial Disarmament Committee on chemicals.

Mr. Leppart, before joining Prior as a vice-president in August, 1947, had been assistant to the operating vice-president of Southern Alkali Co., Texas. He began his career in the chemical industry with Solvay Process Co. in 1919 doing plant and laboratory work. He joined the affiliated Solvay Sales Company in 1926 and, in 1931, became assistant director of sales of Columbia Chemical Division of Pittsburgh Plate Glass Co. In 1942, he joined the War Production Board as a $1 a year man in an administrative post on alkalies, chlorine and related products.

L. A. Soap Promotion

Returning to premium offer type promotions for the first time since before the war, Los Angeles Soap Co. announced recently a six-weeks campaign in behalf of its "Scotch Cleanser", "Merrill's Rich Suds", and "Sierra Pine-Scented" toilet soap. Premium for the promotion is three live carnations packed in moss, which can be obtained for 25 cents plus a box top from one of the company's soaps or two wrappers from the toilet soap. Radio and point of purchase sales aids will be used to advertise the offer. The store dealers with the best display for the promotion will receive a prize of a major Westinghouse home appliance.

Front Cover Photo

One of the prize winning floral bouquets at the recent Flower Show at the Grand Central Palace, New York, is the subject of the photograph by John J. Loughlin, well-known exponent of the box camera, used as the motif for the front cover advertisement of Ungerer & Co., New York, in this issue. Mr. Loughlin's photography of still life has won many prizes and wide recognition in American camera circles.

"Silver Dust" Back

"Silver Dust" granulated soap, made by Lever Brothers Co., Cambridge, Mass., is back on the market after an absence of five years. Said to be the fourth largest selling granulated soap in the U.S., "Silver Dust" was taken off the market in 1943 because of the shortage of fats and oils. Originally the product was introduced in 1931, as a companion product to "Gold Dust". In its new form, "Silver Dust" is packed in a blue, orange and white package. An 11-inch square, Cannon face cloth is included with each package, and is illustrated on the front of the box. Other changes according to the announcement, include an improved formula and national distribution. Previously the product was not available on the West Coast. An extensive schedule of newspaper and radio advertising will be used to promote the return of "Silver Dust."

Speaks on Packaging

E. H. Balkema of the purchasing department of Colgate-Palmolive-Peet Co., Jersey City, N. J. spoke at the Packaging Conference, Apr. 26, held in Cleveland in connection with the 17th annual Packaging Exposition of the American Management Association. The exposition was held at the Cleveland Auditorium Apr. 26-30, while conference sessions were held concurrently during the week in the Music Hall and the Little Theatre. Mr. Balkema's topic was: "An Objective Scrutiny of Package Printing Processes".

Packaging and materials for packaging were exhibited in the Auditorium, while packaging information was exchanged at conference sessions in which more than 1,500 persons interested in packaging participated.

P. & G. Buys in Mexico

Purchase of a vegetable oil refinery and shortening plant in Mexico City by Procter & Gamble Co., Cincinnati, was announced recently. A permit to incorporate has been granted and the company is operating in Mexico as Procter & Gamble de Mexico S. A. de C. V. The new P. & G. Mexican plant will crush and refine vegetable oils.

effective
reliable
stable
economical
consistent

a group of
powerful perfume oils for soap

For a group of products that are effective in small proportions, have outstanding olfactory strength and persistence, are stable in alkali media, readily available in large quantities, thoroughly consistent from one batch to another—try Givaudan's time-tested and well-honored Citrenes and related products. Pioneers in the field of citronella substitutes, the Givaudan laboratories are particularly well equipped to develop odors having a citronella character.

CITRENE	**A woody topnote adds interest to a tenacious odor of a citronella and sassafras type.**	**$1.00 per pound**
CITRENE No. 2	**A variation of Citrene, having somewhat of a balsamic character.**	**.78**
CITRENE X	**Rosy and lemony, a tenacious, pleasant scent to cover any obnoxious odors of a scouring powder.**	**1.00**
CITROLENE	**Potent, fresh, and clean—a woody, citrus odor having excellent coverage.**	**.47**
CITROSE	**A very potent, clean-smelling odor, based on a citronella-citrus composition—excellent for mechanics' hand soaps.**	**.40**

Prices are per pound in 50-lb. quantities

"Traditionally . . . Progressively . . . Dependably Givaudan"

Givaudan-Delawanna, Inc.

330 West 42nd Street, New York 18, N.Y.

Branches: Philadelphia, Boston, Los Angeles, Cincinnati, Detroit, Chicago, Seattle, Montreal, Toronto

Flavoring Assn. to Meet

The 39th annual convention of the Flavoring Extract Manufacturers Association of the United States will be held May 23-26 at the Hotel Pennsylvania, New York. Much of the emphasis on talks at the meeting will be on the supply situation of basic raw materials. Among the speakers at the various sessions will be: Dr. N. C. Larsen, research chemist of Polak & Schwarz, Inc., New York; Ray C. Schlotterer, secretary, and H. P. Wesemann, vice-president of the Essential Oil Association of the U.S.A.; Percy C. Magnus of Magnus, Mabee & Reynard, Inc., New York; Dr. Arthur H. Behr, director of aromatic research and development, Dow Chemical Co., Midland Mich.; Dr. Ernest Guenther, Fritzsche Bros., Inc., New York; John N. Curlett, McCormick & Co., Baltimore, and C. L. Lightfoot, Anchor-Hocking Glass Corp., New York.

New Monsanto Detergent

A new synthetic detergent, "MXP," particularly suited for industrial cleaning, was announced during April by Monsanto Chemical Co., St. Louis. "MXP," according to the company announcement, is a built detergent, containing the non-ionic type surface active agent and detergent. The builders were chosen specifically for their synergistic qualities, which should result in economy in use, the company states. The product is said to have unusually high cleaning action over a broad range of solution concentrations and under many process conditions. Because of its non-ionic nature, it does not form insoluble curd in hard water, forming practically no suds and rinsing freely.

The new Monsanto detergent is not designed for use solely as a wetting agent, since it is sufficiently effective for detergent purposes. "MXP" is recommended for heavy duty operations such as metal cleaning, also bottle and dairy equipment cleaning and mechanical dishwashing. It may be used alone or in combination with other alkalies.

Data sheets available on the new detergent indicate that it is a dense, pale yellow powder of a mild but characteristic odor. It is mildly alkaline and is stable to 20 percent caustic soda at the boil, but is salted-out at such alkali concentrations.

Lautier Fils, Inc., recently located in its own building (above) at 321 Fifth Ave., New York. At present the firm occupies only three of the floors, two of which have been completely modernized and equipped with fluorescent lighting. New furniture for the offices has been acquired and large exhaust fans have been installed over the packing area. The company was previously located at 154 W. 18th St.

Shampoo Export Licenses

Licenses are no longer required for the export from the United Kingdom of ready-packed soapless shampoos, according to a recent report of the British Board of Trade.

Chicago Toilet Goods Fair

The Chicago Associated Toiletries Salesmen will open their annual toilet goods fair at the Palmer House, Chicago on next Sept. 12, for a one-week run, it was announced last month. President of the organization this year is Frank Manning, of Ciro Perfumes; vice president is David Engel of Charles of the Ritz, and the secretary-treasurer is W. R. Tenney of Lentheric, Inc. Mr. Engel is chairman of the show committee.

Soap Imports, Exports Off

U.S. soap imports in 1947 declined to an inconsequential level of slightly over 700,000 pounds, as compared with over 8,000,000 pounds in 1946. Exports of soap from the U.S. also declined during 1947, according to figures released recently by the Bureau of Census of the U.S. Department of Commerce. Soap exports from the U.S. last year were about eight million pounds under the 1946 level. Figures for soap exports and imports follow:

Imports

Soap—	1947	1946
Castile ..... lb.	12	10,015
Toilet ..... lb.	52,813	19,209
Alizarin assistant, Turkey red oil, sulphonated oil, soaps containing castor oil and all soluble greases used in processes of softening, dyeing or finishing ... lb.	12,087	6,450
Medicated ..... lb.	3,026	3,420
Leather ..... lb.	171,661	196,888
Soap and soap powder, n.s.p.f. ..... lb.	521,046	8,260,240

Exports

Soap—		
Medicated ..... lb.	[1]	1,061,155
Toilet or fancy ..... lb.	16,847,288	24,308,929
Laundry ..... lb.	45,881,847	57,710,708
Powdered and flaked .. lb.	16,138,457	6,556,959
Shaving creams ..... lb.	683,988	1,440,691
Shaving cakes, powders and sticks	324,613	440,447
Scouring bricks, pastes, powders, etc. ..... lb.	7,731,088	7,461,505
Other soap ..... lb.	5,535,260	2,344,781

[1] Combined with "Toilet or fancy soap in 1947.

Phila. Quartz Names Rep.

Miller E. Barton has been appointed to the sales staff of Philadelphia Quartz Co., Philadelphia, the company announced last month. His territory will include the States of Kansas, Missouri, Nebraska and Iowa. He will assist Clement F. Lovely, senior representative in the area. Mr. Barton is a graduate of the University of Missouri, where he received a Bachelor's degree in chemistry. He is a Navy veteran, having been discharged from service as a Lieutenant (jg) in 1946.

VA Hospitals' Soap Use

Over 600,000,000 pounds of laundry and cleaning supplies were used by the Veterans Administration hospitals in 1947 for laundering patients sheets and clothing, washing dishes and cleaning floors, woodwork and equipment, according to a release issued by the VA during April. Dishes required 1,300,000 pounds of dishwashing compound prepared for mechanical dishwashing. Hospital laundries used 400,000 pounds of soap chips; 900,000 pounds of laundry soap bars; 1,000,000 pounds of powdered laundry soap; 240,000 pounds of bluing and 220,000 pounds of starch. General cleaning accounted for 1,000,000 pounds of scouring powder; 50,000 pounds of grit soap and 1,300,000 pounds of powdered soap suitable for all types of use. Hospital patients used 400,000 bars of white toilet soap.

Beach Joins Will Corp.

Willis J. Beach formerly associate editor of *Soap & Sanitary Chemicals*, recently joined Will Corp., Rochester, N. Y., as a technical consultant. He became associated with *Soap* in June, 1946, having earlier spent 10 years in the fats, oils and soap industry. A graduate of Cornell University, where he did graduate work, as well as at Massachusetts Institute of Technology, Mr. Beach received his early training as a chemist with Procter & Gamble Co., Cincinnati. Later he went to Hershey Corp., Hershey, Pa., as a research chemist when that company initiated its work to develop soap products from waste and by-products of chocolate manufacture. During the recent, war, he served over three years with the Navy, his last assignment being in connection with the purchase and installation of machinery for a copra expeller mill and soap factory for the Navy military government on Guam.

Toilet Soap Gluts P.I.

The toilet soap market in the Philippines is glutted as a result of excessive production in the Islands themselves and imports from the United States, according to an executive of a Philippine soap company in a recent interview cabled to the *Journal of Commerce* of New York. The Islands can consume all the laundry soap that can be manufactured or imported. But because of the excessive amount of toilet soap available in the Philippines the firm, whose vice-president was interviewed, is reducing its production 40 percent and is seriously considering sending the idle machinery to the Asiatic mainland, where soap is still short.

John O. Brownell, right, general sales manager of Lever Brothers Co., Cambridge, displays the four pieces of aluminumware currently being featured in Lever's "Buy - Two - Sale."

Cowles Supt. Dies

Charles R. Squires, superintendent of the Cowles Detergent Co., Mottville, N. Y., died April 12 in Auburn (NY) City Hospital. His wife and a daughter survive.

Graham Joins Firmenich

Charles C. Bryan, managing director of Firmenich & Co., New York, announced the appointment of W. Douglas Graham as technical director of the firm's flavor division. Mr. Graham was formerly a flavor research chemist with Fritzsche Bros., New York, and more recently served as a director of research for the Fanny Farmer Candy Shops, Inc.

Lever Promotion

A "Buy-Two-Sale" type of premium promotion was introduced in grocery stores and supermarkets of the United States during April by Lever Brothers Co., Cambridge, Mass. By buying any two of eight Lever products savings of from one-third to one-half can be made on three types of "Regal" aluminum kitchen utensils. Grocers themselves do not have to handle any of the aluminumware. Lever products involved include: "Rinso, Breeze, Lux, Lifebuoy, Swan, Spry, Silver Dust or Lux Toilet Soap." Premiums are a two-quart saucepan, a nine-inch frying pan and two, eight-inch cake pans.

Babbitt Earnings Rise

B. T. Babbitt, Inc., and subsidiaries reported a net income for the first quarter of 1948 of $625,843, equal to 61 cents each on 1,024,597 shares outstanding, compared with $506,925, or 50 cents each on 1,020,000 shares outstanding in 1947. Sales of $4,234,222, a record for the period, increased from the previous year's first quarter total of $3,604,468.

BIDS AND AWARDS

Floor Wax Bids

Bidders on 16,500 gallons of floor wax in a recent opening for miscellaneous supplies by the U.S. Treasury Department Bureau of Federal Supply, Washington, D.C., included: Sherwin Williams Co., Washington, D.C., 98 cents and an alternate bid of 78 cents; Glidden Co., Washington, D.C., 83 cents; American Products Co., Reidsville, N. C. 59.7 cents; M. A. Bruder & Sons, Philadelphia, 95 cents; Majestic Products Corp., Philadelphia, 64 cents; R. M. Hollingshead Corp., Camden, N. J., 69 cents; Liquid Veneer Corp., Washington, D. C., $1.15; Puritan Chemical Co., Atlanta, 83 cents; Lasting Products Co., Baltimore, 81 cents; Bri-Test, Inc., New York, 54.5 cents; International Metal Polish Co., Indianapolis, $1.08; T. F. Washburn Co., Chicago, 89 cents; Huntington Laboratories, Huntington, Ind., $1.30; Boyle-Midway, New York, $1.20; E. I. du Pont de Nemours & Co., Philadelphia, $1.24; Continental Car-Na-Var Corp., Brazil, Ind., $1.93 drum deposit $6 each; C. M. C. Laboratories Co., New York, 87 cents; Penetone Co., Tenafly, N.J., 78 cents; Flexrock Co., Philadelphia, $1.15; Mudge Paper Co., Janitor Supply Dept., Baltimore, 89 cents; Janitors' Supply House, Baltimore, 93 cents; By-Chemical Products Co., San Francisco, 95.5 cents; Oil Specialties & Refining Co., Brooklyn, 77.7 cents; Buckingham Wax Co., Long Island City, N.Y., 82.9 cents and Bond Sanitary Products Co., York Pa., 67 cents.

Bids on Metal Polish

In a recent opening for miscellaneous supplies by the Bureau of Federal Supply, U.S. Treasury Department, Washington, D.C. the following bids were received on 702 pints of metal polish: Cole Laboratories, Inc., Long Island City, New York, 17.9 cents; Ches-White Co., Baltimore 18.5 cents; Trio Chemical Works, Brooklyn, 10 cents; Liquid Veneer Corp., Washington, D.C., 15 cents; Bri-Test, Inc., New York, 11.2 cents; International Metal Polish Co., Indianapolis, Ind., 26 cents; Walter W. Miller Co., Indianapolis, 26 cents; Park Chemical Co., Detroit, 18 cents; C. P. Baker & Co., Philadelphia, 25 cents; Emkay Chemical Co., Elizabeth, N. J., 17 cents; Baum's Castorine Co., Rome, N. Y., 23.25 cents; D. A. Collins Mfg. Co., Brooklyn, 12.5 cents; Uncle Sam Chemical Co., New York, 15 cents; R. M. Hollingshead Corp., Camden, N. J., 11.9 cents; Janitors' Supply House, Baltimore, 21 cents; Mudge Paper Co., Janitor Supply Department, Baltimore, 18.5 cents; Oil Specialties & Refining Co., Brooklyn, 19.3 cents.

Bids on DDT for USDA

Among the bidders on22,400 pounds of DDT in a recent opening for miscellaneous supplies by the Department of Agriculture, Division of Purchases, Sales and Traffic for Morristown, N. J. were: Geigy Co., New York, 31.22 cents; E. I du Pont de Nemours & Co., Wilmington, Del., 31.75 on 22,-350 pounds; Central Chemical Corp., Lebanon, Pa., 29 cents; Berg Chemical Co., New York, 27 cents; A. M. R. Chemical Co., Brooklyn, 32 cents; Octagon Process, Brooklyn, 32 cents; J.T. Baker Chemical Co., Phillipsburg, N.J. 29 cents; Merck & Co., Rahway, N. J., 29 cents; Monsanto Chemical Co., St. Louis, 29.2 cents; Michigan Chemical Co., St Louis, Mich., 29 cents; Niagara Chemical Div., Food Machinery Corp., Middleport, N.Y., 30 cents; Westvaco Chlorine Products Corp., New York, 29 cents; Winru Chemical & Sales Co., Kansas City, Mo., 32 cents; Kolker Chemical Works, Newark, N.J., 29 cents.

Sweeping Compound Bids

The following bids were received on 10,000 pounds of sweeping compound in a recent opening for miscellaneous supplies by the Bureau of Federal supply, U.S. Treasury Department, Washington, D. C.: Allen Burns Co., Buffalo, $2.25 cwt; Mathers-Lamm Paper Co., Washington, D. C., 3 cents; Dustbane Products Co., Chicago, 3.9 cents; Puritan Chemical Co., Atlanta, 3.98 cents; Lasting Products Co., Baltimore, 4.2 cents; Mudge Paper Co., Janitor Supply Department, Baltimore, 2.4 cents; Holmerden Co., Stratford, Conn., 3 cents; Daycon Products Co., Washington, D.C., 2.85 cents; Paxson Mfg. Co., Philadelphia, 2.85 cents; A. M. R. Chemical Co., Brooklyn, 3.5 cents; Mollen Chemical Co., Philadelphia, 4 cents; Janitors' Supply House Baltimore, $3.30 cwt; Appleby Bros. & Whitaker Co., Harrisburg, Pa., 3.08 cents; M. J. Gensburg & Son, Washington, D. C., 2.3 cents.

Furn. Polish Award Bids

The following bids were received on 8,784 quarts of furniture polish in a recent opening for miscellaneous supplies by the Army Quartermaster Corps, Schenectady, N.Y.; Bri-Test, Inc., Bronx, N.Y., 20 cents a quart accepted; Liquid Veneer Corp., Washington, D.C., 29.5 cents; Trio Chemical Works, Brooklyn, 23 cents a quart; A. M. R. Chemical Co., Brooklyn, 22.5 cents a quart; R. M. Hollingshead Corp., Camden, N.J. 23 cents a quart; Twin City Shellac Co., Brooklyn, 37 cents a quart.

Disinfectant Bids

In a recent opening for miscellaneous supplies by the Bureau of Federal Supply of the U.S. Treasury Department, Washington, D.C., the following bids were received on 444 gallons of disinfectant; Coopers Creek Chemical Corp., West Conshohocken, Pa., 89 cents; Gerson-Stewart Corp., Cleveland, 65 cents; Uncle Sam Chemical Co., New York, 77.4 cents; West Disinfecting Co., Long Island City, N.Y., $3.75; Kumar Kompany, Thomasville, Ga., $2; R. M. Hollingshead Corp., Camden, N.J., $1.24; James Huggins & Sons, Malden, Mass., 90 cents.

Treas. Metal Polish Bids

The following bids were received on 108 pounds of metal polish in a recent opening for miscellaneous supplies by the Bureau of Federal Supply, U.S. Treasury Department, Washington, D.C.: Bond Sanitary Products, York, Pa., 19 cents and Emkay Chemical Co., Elizabeth, N.J. 18 cents.

NEW TRADE MARKS

The following trade-marks were published in the April issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Mark Applications

WATAWAX—This in large and small upper case letters for cleaning and polishing compound for use on woodwork, painted walls, floors, glass and porcelain. Filed Aug. 31, 1944 by J. E. Johnson & Co., Cleveland. Claims use since about December 1, 1936.

BEST & CO.—This in upper and lower case, extra bold, old English style letters for soap in liquid, cake, stick, cream or powder form. Filed Jan. 20, 1947 by Best & Co., New York. Claims use since Apr. 2, 1925.

LAN-EX—This in upper case bold letters for liquid shampoo. Filed Mar. 23, 1946 by Mal Laboratories, New York. Claims use since Jan. 14, 1945.

FLIPO—This in upper case, open letters for insecticides and insect sprays. Filed May 27, 1946 by Eagle Products Co., Chattanooga, Tenn. Claims use since May 6, 1946.

DDT GEIGY DDT—This in upper case bold, and medium bold, upper and lower case letters for insecticides. Filed July 6, 1946 by Geigy Co., New York. Claims use since Nov. 29, 1945.

GEIGY DDT—This in upper and lower case, extra bold, black letters for the word "Geigy" and upper case outline letters superimposed upon the word "Geigy" for insecticides. Filed July 6, 1946 by Geigy Co., New York. Claims use since Nov. 29, 1945.

MINUTE MAN—This in upper and lower case, medium letters for shampoo. Filed July 8, 1946 by Procter & Gamble Co., Cincinnati. Claims use since May 13, 1946.

CARBONID—This in upper case, open letters for soot destroying compound. Filed July 17, 1946 by Weldum Products Co., Madison, Ind. Claims use since May 1, 1915.

GOLD SEAL—This in upper and lower case, open letters on a seal and ribbon for tincture of green soap. Filed Feb. 26, 1947 by De Vore Manufacturing Co., New York. Claims use since Apr. 1, 1922.

TICK POWDER—This in extra bold and bold, upper and lower case letters on a pennant held in the mouth of a small dog for tick, flea and lice powder. Filed Mar. 17, 1947 by Carson Chemicals, Brownsville, Tex. Claims use since Dec. 17, 1946.

WOODLETS—This in upper case, bold letters for small spraying or atomizing device that operates under pressure. Filed Oct. 3, 1946 by G. H. Wood Co., Toronto. Claims use since Dec. 17, 1945.

SMOLDERING—This in upper case, bold letters for toilet and laundry soaps. Filed Apr. 24, 1946 by Consolidated Cosmetics, Chicago. Claims use since Mar. 28, 1944.

LETS-GO—This in upper case, bold letters within a diamond for paint cleaners. Filed Aug. 9, 1946 by P & H Products, Inc., Memphis, Tenn. Claims use since June 28, 1946.

ARYLITE—This in upper and lower case, open letters for detergent for cleaning automobiles, airplanes, busses, etc. Filed Aug. 29, 1946 by Quickway Products, Inc., Charleston, W. Va. Claims use since May 1, 1946.

GOLD CUP—This in upper case, bold letters on either side of a silhouette drawing of a loving cup for fabric cleaner, pre-wax cleaner and chrome polish. Filed Dec. 3, 1936 by Dunlop Tire and Rubber Corp., Buffalo, N. Y. Claims use since Oct. 8, 1946.

MODERN GENIE—This in lower case letters, placed vertically, with the words side by side for shampoo. Filed May 10, 1946 by London Manufacturing Chemists, Portland, Ore. Claims use since Feb. 14, 1946.

BURMA VITA—This in large and small upper case, medium bold letters for tooth powder. Filed June 14, 1946 by Burma-Vita Co., Minneapolis. Claims use since June 3, 1946.

U-MIX-IT—This in upper case, bold, outline letters which grow smaller running from left to right for chemicals used for moth-proofing. Filed Oct. 5, 1946 by James Lyle Miller, New York. Claims use since July 18, 1946.

ANIMETICS—This in upper case, bold letters for shampoo, flea repellent and insect repellent powder and lotion for use on dogs. Filed Dec. 7, 1946 by G. D. Runnels, New York. Claims use since Nov. 18, 1946.

PRO-PHY-LAC-TIC—This in upper and lower case, bold script letters for insect repellent. Filed Feb. 20, 1947 by Pro-Phy-Lac-Tic Brush Co., Northampton, Mass. Claims use since May 22, 1944.

NOTOXIDE—This in upper case, bold letters in a semi-circle for oxidizing agent for use as an antiseptic and disinfectant. Filed Mar. 3, 1947 by Sales Affiliates, Inc., New York. Claims use since April, 1926.

OZIUM—This in upper case, extra bold, black letters for air refreshing deodorant. Filed May 3, 1947 by G. H. Wood & Co., Toronto. Claims use since Oct. 30, 1945.

DI-D-SAN—This in lower case, bold, outline letters for deodorant and disinfectant compositions. Filed June 11, 1947 by Mido Products, Torrance, Calif. Claims use since Apr. 1, 1947.

DARWORTH—This in upper case, extra bold, black letters for insecticides. Filed July 1, 1947 by Darworth, Inc., Simsbury, Conn. Claims use since June 11, 1947.

CARDIS—This in upper case, bold, stencil letters for petroleum wax. Filed Jan. 20, 1947 by Sun Chemical Corp., New York. Caims use since May 27, 1946.

PARFUM—This in upper and lower case, bold, script letters above the fanciful drawing of a young woman holding a piece of cloth for petroleum solvent used as a french dry cleaner and spot remover. Filed Apr. 16, 1946 by El Camino Petroleum Co., Los Angeles. Claims use since Jan. 26, 1946.

GLO-RIA—This in upper and lower case, medium bold letters for cleanser for white fabrics. Filed Sept. 13, 1946 by Geo. E. Keith Co., Brockton, Mass. Claims use since 1928.

SPREE—This in upper case, bold letters that ascend from left to right for washing and cleaning solutions. Filed Nov. 23, 1946 by Par Products Co., Cincinnati. Claims use since July 1, 1946.

SILVER FOAM—This in upper case, extra bold letters for liquid toilet soap. Filed Mar. 19,1947 by Higley Chemical Co., Dubuque, Ia. Claims use since Aug. 26, 1926.

EDISONITE—This in upper case, extra bold letters for powder for making cleaning solution for eye glasses, jewelry, etc. Filed July 3, 1947 by Edison Chemical Co., Chicago. Claims use since July 1, 1940.

TOO—This in upper case, extra bold letters for tooth paste. Filed July 3, 1946 by Frederic J. Trump, Stamford, Conn. Claims use since May 7, 1946.

SPRAY-O-DOR—This in upper case, bold letters for door check deodorizing sprayers. Filed Jan. 13, 1947 by Spray-O-Dor Co., Chicago. Claims use since Oct. 29, 1937.

POLLY-ENE—This in lower case, bold, outline letters on an angle beneath the drawing of a parrot and the words "keep slick and clean with" for cleaning and washing compound. Filed Apr. 30, 1945 by Advanco Laboratories, Inc., Saginaw, Mich. Claims use since Apr. 3, 1945.

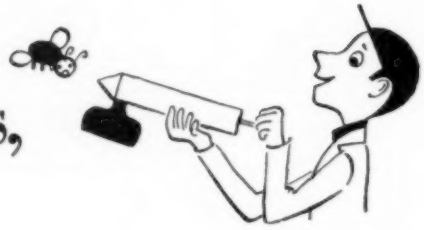
FASUDS—This in upper case, bold letters for soapless cleaning powder. Filed Dec. 21, 1945 by Irwin-Newman Products Corp., Brooklyn. Claims use since Oct., 1945.

HELP—This in upper and lower case, extra bold letters for general household cleaning preparation. Filed Oct. 25, 1946 by Help, Inc., Chicago. Claims use since Sept. 15, 1925.

SUNOCO—This in upper case, extra bold letters for chrome cleaner and dry cleaning fluid. Filed July 1, 1947 by Sun Oil Co., Philadelphia. Claims use since Apr. 18, 1944.

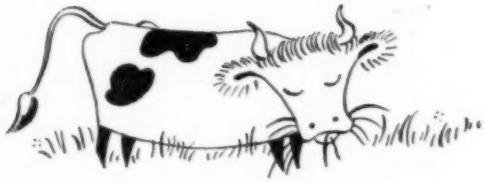
If you make cleansers

or insecticides,



process foods

or tan hides



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In a dozen different fields, from dye bath to pickling bath, Wyandotte Kreelon answers the need for a highly effective synthetic organic detergent and wetting agent.

Broadly classified as a surface active agent, this versatile new product is efficient in reducing the surface tension of water and aqueous solutions. It *penetrates, spreads, emulsifies, disperses and cleans as it wets.* Its great value lies in its ability to function well in acid, alkaline or neutral solutions, and in hard or soft waters—either alone or in solutions and dry mixes with a great number of other chemicals.

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Ethylene Dichloride • Propylene Dichloride • Chloroethers • Aromatic Sulfonic Acid Derivatives • Other Organic and Inorganic Chemicals

Wyandotte
REG. U. S. PAT. OFF.

VERMEX—This in upper case, extra bold letters for insecticides. Filed May 8, 1946 by Vermex Company of America, Glendale Calif. Claims use since Nov., 1940.

THE GLASS MENAGERIE—This in upper case, bold letters for bubble bath. Filed June 6, 1946 by Mayo Reese, Inc., Chicago. Claims use since Apr. 23, 1946.

PET-A-GREE—This in upper case, bold letters in the form of an arc for shampoo for dogs. Filed Oct. 2, 1946 by Vonett Sales Co., Los Angeles. Claims use since Mar. 14, 1936.

Fanciful drawing of a woman with curly hair for hair shampoo. Filed Nov. 18, 1946 by Del-Mar Products Co., Oakland, Calif. Claims use since May, 1946.

SERAN—This in upper case bold letters for shampoo. Filed Mar. 19, 1947 by Seran Co., Springfield, Mass. Claims use since Jan 7, 1947.

KLEER-X—This in large and small, bold, capital letters for pine disinfectant. Filed May 8, 1947 by Trio Chemical Works, Inc., Brooklyn. Claims use since Jan., 1941.

GARDENER'S FRIEND—This in upper and lower case, bold letters for garden insecticides. Filed May 29, 1947 by Agricultural Chemical Mills, Marion, Ill. Claims use since Apr. 1, 1944.

INSECTOMIZER—This mark in upper case, reverse letters on an oblate background, from which lines extend diagonally, for insecticide dispensers. Filed Feb. 15, 1946 by Knapp-Monarch Co., St. Louis. Claims use since Oct. 3, 1945.

VEGTABATH—This in upper case, bold letters for preparation in tablet form, which is dissolved in water and used for washing fruit and vegetables. Filed Apr. 1, 1947 by Peerless Packers, New York. Claims use since Oct. 5, 1947.

GRE-SORBENT—This in upper case, bold stencil letters for cleaner in powder form or oils and greases. Filed May 5, 1947 by L. Spanger Products Co., Oak Park, Ill. Claims use since June 7, 1940.

DEAD-LITE—This in upper and lower case, extra bold letters for liquid insecticide composition. Filed Apr. 2, 1947 by Higley Chemical Co., Dubuque, Ia. Claims use since Oct. 27, 1931.

TICKAWAY—This in upper case, extra bold letters for insecticides. Filed Apr. 24, 1947 by Goodwin Laboratories, Inc., New York. Claims use since Apr. 22, 1947.

MABEX—This in upper case, bold letters for moth cakes and crystals. Filed June 10, 1947 by Mabex Co., Philadelphia. Claims use since 1932.

DISILYN—This in upper case, bold letters for disinfectant. Filed June 11, 1947 by Lynwood Co., Chicago. Claims use since June 28, 1945.

TROUSSEAU—This in upper case, extra bold letters for toilet soap. Filed June 7, 1945 by Norman J. Phelps, Palatine, Ill. Claims use since May 10, 1942.

SWIRT—This in upper case, bold, stencil letters for cleaning compound for cleaning metals. Filed Aug. 2 1945 by Phillips Chemical Co., Chicago. Claims use since Oct. 14, 1944.

BRYTE SPOT—This in upper case, extra bold letters one word above the other in the form of arcs for washing compound. Filed Nov. 7, 1946 by Bryte Spot Products, Bloomingdale, Mich. Claims use since Oct. 19, 1946.

WETALENE—This in upper case, open, reverse letters above three test tubes descending from left to right across which are the words "It is Tested" and above the words "Laboratories, Inc., Columbus, Ohio" for powdered cleanser. Filed Feb. 17, 1947 by Wetalene Laboratories, Inc., Columbus, O. Claims use since Feb. 19, 1935.

BERCO—This in upper case, reverse letters at the center of a compass like design for methyl bromide for use as an insecticide. Filed Oct. 1, 1946 by J. Berlage Co., New York. Claims use since Dec., 1945.

SWEET-N-ICE—This in upper case, bold letters for refrigerator deodorants. Filed Jan. 13, 1947 by R. F. Charbach Co., Chicago. Claims use since Nov. 20, 1946.

GRAINOSECT—This in upper case, bold letters for insecticides. Filed June 2, 1947 by West Disinfecting Co., Long Island City, N. Y. Claims use since Dec., 1930.

SPRAYLETS—This in upper case, bold letters for sprayers for diffusion of insecticides and deodorants. Filed Oct. 3, 1946 by G. H. Wood & Co., Toronto, Canada. Claims use since Dec. 17, 1945.

The following trade marks are published in compliance with section 12 (a) of the Trade Mark Act of 1946. Notice of opposition must be filed within 30 days of publication and a fee of $25 must accompany each notice of opposition.

O—This in upper case reverse letter on a rectangular background bearing a design of concentric circles for sudsing cleaner, cleanser and detegent. Filed July 5, 1947 by Procter & Gamble Co., Cincinnati. Claims use since May 19, 1930.

BIG BEN—This in upper case, bold letters for soap. Filed July 16, 1947 by Armour & Co., Chicago. Claims use since April, 1928.

OLEODIGESTINE—This in upper case, bold letters for spot removers of the dry stick type. Filed Sept. 17, 1947 by Aidmore Products Co., West Orange, N.J. Claims use since June 19, 1947.

DEAD-SURE—This in upper case, bold letters for insecticides. Filed July 5, 1947 by Norman C. Hayner Co., Rochester, N. Y. Claims use since Jan. 1, 1910.

THIOPHOS 3422—This in upper case, bold letters for parathion in wettable powder, dust, aerosol, emulsion or solution form for use as insecticide, rodenticide and bacteriocide. Filed Sept. 23, 1947 by American Cyanamid Co., New York. Claims use since Sept 15, 1947.

8 BALL—This in reverse numeral on black ball background above the word "Ball" in upper and lower case, extra bold, script letters for chemical powder and liquids for combating insects and rodents. Filed Oct. 8, 1947 by Young-Jones Laboratory, Tampa, Fla. Claims use since Mar. 15, 1947.

DIVOLUXE — This in upper case, extra bold letters for cleaning compound in granular form for use in cleaning milk cans and other similar products. Filed Aug. 2, 1947 by Diversey Corp., Chicago. Claims use since Jan. 3, 1946.

GLOSS WAX—This in upper case, bold letters, one word above the other, for glass cleaner and polish. Filed Dec. 16, 1947 by Gold Seal Co., Bismark, N. D. Claims use since Sept. 15, 1945.

DYTRON—This in upper case, medium bold letters for solvent for use in insecticides. Filed July 28, 1947 by Monsanto Chemical Co., St. Louis. Claims use since June 4, 1947.

CHLORDUST—This in upper case, extra bold, block letters for insecticides. Filed Aug. 25, 1947 by Stauffer Chemical Co., San Francisco. Claims use since Apr. 3, 1947.

MORLAC—This in upper case, bold letters for cleaning compound for dairy equipment. Filed Oct. 2, 1947 by Westvaco Chlorine Products Corp., New York. Claims use since June 2, 1947.

LAXAN—This in upper case, bold letters for bottle washing compound. Filed Oct. 2, 1947 by Westvaco Chlorine Products Corp., New York. Claims use since June 2, 1947.

(*Turn to Page* 179)

"Take a tip . . . use Hardesty Fatty Acids"

". . . and this isn't like a tip on the horses! No, sir, Hardesty fatty acids are a *sure* thing — sure in uniformity, sure in delivery, sure in on-the-job performance.

We were tipped off about Hardesty fatty acids — and we haven't lost a minute's work since! Hardesty always matches our specifications, and we can count on a steady flow of supply. From what we see, they specialize in exactly *what* we want, exactly *when* we want it.

How to get in touch with Hardesty? Sure! It's W. C. Hardesty, 41 East 42nd Street, New York 17. The number? MUrray Hill 2-1920. Tell them a super-satisfied customer sent you!"

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HARDESTY PRODUCTS ARE INDUSTRY'S KEYSTONE

RAW MATERIAL MARKETS

As of April 30, 1948

A STIFFENING of oil and fat prices during the latter part of April was the dominant feature of the market during the past month. One exception to the general advance of oils and fats used by soap makers was tallow. The price of tallow had remained steady at about 18 cents during March and for first two or three weeks of April. During the third and fourth weeks of April as prices of other oils and fats rose, tallow suddenly dropped four cents a pound in one week. Latest quotation is 14 cents and soapers are reported to have stopped buying at that price.

Fats and oils whose prices have increased in the month include lard, a fraction of a cent higher than a month ago; coconut oil, up two cents; soybean oil, increased three cents; corn oil, five and one-half cents higher; peanut oil up four cents; cottonseed crude, an advance of five cents.

Philippine copra prices advanced steadily during April. Late in March copra was quoted at $290 a short ton, c. i. f. Pacific Coast. On April 2, the price advanced $5 a ton. A week later the price of copra was up $10 to $305 a short ton, with stocks at Philippine ports for near delivery said to be small. The cost of copra increased another $25 and later rose $20 overnight to bring the price to $350 per long ton. Offerings of copra in response to an opening by the Army were so high that the bids were all rejected. It is reported they ran between $325 and $355 a long ton.

Meanwhile, the Bureau of Agricultural Economics of the U. S. Department of Agriculture, predicted that high prices for fats and oils would prevail for the remainder of the year. Supply prospects indicate that edible and soap fats and oils for the rest of 1948 are likely to average at least as high as in March if general business activity does not decline, according to the official summary of the Fats and Oils Situation of the U.S.D.A.

In early April, prices of edible vegetable oils advanced sharply. Production of animal fats during the rest of 1948 is likely to be smaller than a year ago. Cattle slaughter, in relation to a year earlier, has been declining since last October. The number of cattle on feed in the Corn Belt since April 1, was 25 percent less than a year ago. Hog slaughter since September, 1947, has been slightly greater than a year earlier, and

HERE'S MONEY IN THE BANK .....FOR YOU!

A 10% saving is just as much money in the bank as a 10% profit. But when you add the two—a normal profit, plus the 10% you can save in raw materials by using DUROFIX F.B.—the total is a really tidy sum. And that's exactly what DUROFIX enables you to do . . . Consider its action in a good toilet soap in which a portion of its costlier perfume—10% or more—has been replaced with an equal amount of low cost DUROFIX. You will observe that the volume of perfume in the finished soap seems greater in that containing DUROFIX. Its addition lifts or accentuates the fragrance—rounds it off and covers the odor of the soap stock. Furthermore, the perfume is fixed. It lasts longer in the soap and in its final stages of evaporation, the *full* odor complex is still present . . . If you want this improvement in your product, if you want this 10% saving, write us for testing sample of DUROFIX. It can be used in cake or liquid soaps, bath salt perfumes and many other products. We'll gladly send particulars.

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probably will be about as large this spring as in the spring of 1947. However a decline in hog slaughter is expected next summer and fall.

Output of edible vegetable oils probably will total about the same in 1947-48 as a year earlier. However, the seasonal decline in output this spring and summer will be sharper than a year ago because production in 1947-48 has been concentrated more heavily in the first part of the crop year. Output of edible oils in late 1948 will depend on the outturn of the 1948 oilcrops. No great change from last year is expected for either soybean or peanut crops.

Net imports of all fats, oils and oilseeds into the United States in 1948, on the basis of tentative international allocation may be about 300 million pounds in terms of oil, compared with more than 400 million pounds imported by the U. S. in 1947.

Tentative international allocations for U. S. exports of edible fats and oils in 1948 call for 517 million pounds, as against 640 million pounds for the previous year. The export figures include shelled peanuts exported for crushing abroad, which amounted to 75 million pounds oil content in 1947 and are likely to increase in 1948.

Use of fats and oils in soap in 1948 may be slightly less than in 1947. Use of inedible fats and oils for soap in 1947 was about four pounds per capita larger than in 1946.

Commenting of the world situation regarding fats and oils, Charles E. Lund, chief of the Fats and Oils Section of the Office of International Trade, predicted during April that world exportable supplies of fats and oils will not improve and may possibly decline during 1948. The aggregate international fats and oils outlook this year may be as unfavorable as any during the past three years despite the fact that Europe will increase its oilseed output by a substantial margin over 1947.

An increase in production of palm oil this year in Indonesia from 60,000 tons to 200,000 tons in 1949 and a 1948 copra output of 250,000 tons, about 50 percent of prewar, was indicated in a recent statement in New York of Dr. C. G. Schimmel, chief of the department of foreign trade, Netherlands Indies Government.

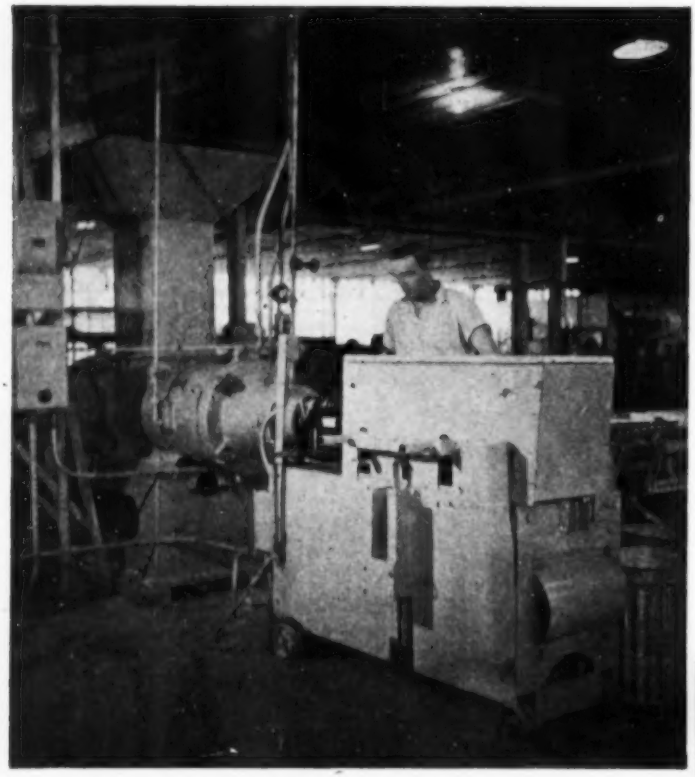
Other developments concerning fats and oils during the month were: Removal of import controls on castor beans and castor oil and the arrival of the first whaling ships at Capetown, South Africa, reporting a whale catch for the 1947-48 season of nearly 350,000 tons.

Carnauba wax prices went slightly lower during the month, No. 1 yellow registering a decline of 4 cents.

Production of glass containers is at a level 25 percent below the 1946 and 1947 rate and high inventories prevail with manufacturers because of greater use of metal and paper containers, according to a speaker at the packaging show in Cleveland.

Further price declines of essential oils were reported during the closing week of the month, with no price advances reported and seven decreases noted. Aromatic chemicals remained firm.

For Efficient Production - -
HOUCHIN SOAP MACHINES



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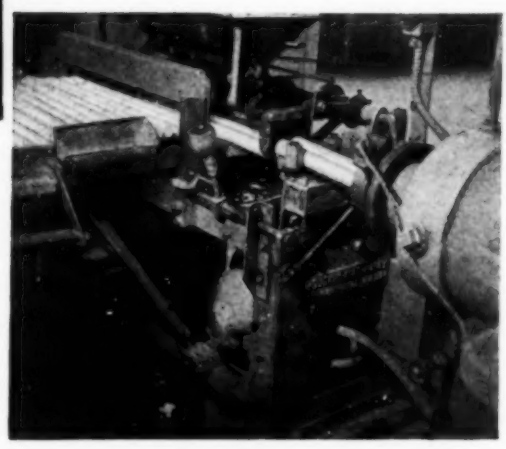

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PRODUCTION SECTION

Manufacture of Silicated Soap

MOST commercial soaps contain a certain percentage of silicate, some carrying a large proportion. From both careful laboratory studies and continued practical use under a variety of conditions over many years, it has been well established that silicates definitely improve the washing action of soaps. Silicates have a synergistic effect and when mixed with soap in proper proportions the resulting product is usually better than either one alone.

Cold Process

The cold process for making a silicated soap involves mixing the carefully weighed or measured fats or grease, caustic soda and silicate in a crutcher. Usually, the silicate is added rapidly after the heat of reaction between the grease and caustic has lowered the viscosity of the mix. A formula successfully used for many years includes 75 pounds of tallow, 25 of cocoanut oil, 75 of 35.5°Be. or 30 per cent caustic-soda lye, and 125 pounds of 41°Be. silicate having a SiO_2:Na_2O ratio of 3.2 of "N" grade silicate.

Semi-boiled Process

The semi-boiled method is similar to the cold process except that a longer period at a high temperature is provided. The tallow and grease are heated to about 140°F. and the lye and silicate are then added. Some soap makers prefer to mix the silicate and caustic and add them together. A successfully used formula for this type of soap includes 316 pounds of tallow, 55 of cocoanut oil, 280 of 35°Be. caustic-soda lye, and 185 pounds of 41°Be. 3.2 ratio "N" silicate.

Full-boiled Process

In the full-boiled process the silicate is added in a crutcher to the kettle soap resulting from the final salting out. A usual proportion for the crutcher charge is 200 pounds of kettle soap to 100 pounds of silicate, but larger amounts of silicate may be used, particularly in bar soaps. As much as 800 pounds of 41°Be. 3.2-ratio "N" silicate can be added per 1000 pounds of most kettle soaps containing 31 per cent of water, and a good soap is produced without much difficulty. Since commercial silicate of this composition contains 37.6 per cent of solids, the resulting product contains 38.3 per cent of anhydrous soap, 16.7 per cent of anhydrous sodium silicate, and 45 per cent of water. The water content will be lower if a more alkaline silicate is used, which permits a higher solids-content in the commercial silicate. Semi-boiled or cold-process soaps incorporate substantially larger quantities of silicate than do full-boiled soaps.

Overcoming Difficulties

When more than 800 pounds of 41°Be., 3.2 ratio silicate are added per 1000 pounds of kettle soap, several difficulties may be encountered, but these can be overcome. Large amounts of silicate or other electrolyte builders added to kettle soap, if not properly incorporated in the soap, tend to cause separation into two layers—a layer of neat soap on lye. The layers result in the formation in the frame of a hollow area and free liquid encased by solid soap, commonly known as a soap "coffin". Recent research has indicated that much more of the siliceous silicates than of any other builder can be added to soap-water mixtures before this separation is produced.

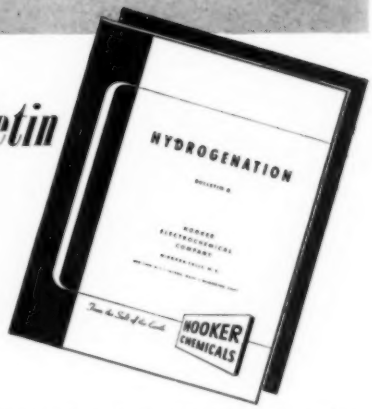
Soap products containing as much or more solid silicate than soap may effloresce or bloom, particularly if soda ash is present. This makes a less attractive product and affects the solubility characteristics. Addition of sugars, long used to produce transparent soaps, tends to prevent efflorescence. Highly silicated soaps may become pasty or viscous but can be worked on the rolls to produce a smooth white soap. The opaque rumpled flake produced under these conditions, although not translucent, is desirable in some cases. Although soaps containing moderate amounts of silicates are as good or better sudsing agents than pure soaps, those containing as much or more silicate than soap, are poorer foaming agents. To some extent foaming power may be restored by adding other sudsing agents.

The presence of more than about 25 percent of anhydrous siliceous silicate in a powdered, granular, chip, or spray-dried soap, or in other products having large surface-to-weight ratio, may result in formation of some insoluble matter in prolonged exposure to air. The condition rarely, if ever, occurs for mixtures of soap and silicate only, but is much more likely to take place if other materials such as carbonates and phosphates are present.

Simultaneous use of silicates and carbonates in flaked soap may, under some conditions, result in precipitation of an insoluble siliceous material, probably a hydrated amorphous silica or a sodium silicate with a SiO_2:NaO_2 ratio greater than 3:5. These formations can be caused by the sorption of carbon dioxide from the atmosphere and its reaction with the silicate to form sodium carbonate. Evaporation dehydrates both the silica and silicate. More alkaline silicates should have less tendency to form insoluble matter.

If you are interested in *Hydrogenation*

You will be interested in this bulletin



Whatever the stage of your "thinking" regarding the hydrogenation of your products or raw materials, you ought to have a copy of the new Hooker Hydrogenation Bulletin. This Bulletin describes the hydrogenation facilities of Hooker's two plants, the types of hydrogenations we are doing, the procedure for both preliminary and laboratory evaluation and the help that Hooker hydrogenation experts can give you.

Hooker has been carrying out hydrogenations at pressures as high as 2500 p.s.i. Careful supervision and the use of high purity hydrogen, a co-product from the electrolytic production of chlorine and caustic soda, assure commercial processing with no diminution of product purity.

Demands on Hooker facilities for hydrogenation are increasing continually. If you are considering hydrogenation, even remotely, we suggest you send for a copy of this Hydrogenation Bulletin, No. 8. A request on your company letterhead will bring it to you. Your next step might well be a discussion of your needs with us so that when ready, your hydrogenation requirements may be fulfilled without delay.

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Good packaging reduces evaporation and contact with carbon dioxide.

Potassium silicates have a decreased tendency to form insoluble matter on exposure to air. Addition of sucrose, glucose, dextrin, corn syrup, honey, starch, and similar materials, as well as rosin, should be helpful in reducing formation of insoluble material, and in addition should produce clearer, smoother mixes in the crutcher.

The temperature of crutching must be just high enough so that the mixture is sufficiently fluid to flow freely and permit good mixing to a smooth homogeneous product. Too high a temperature may cause a separation into two layers. Soaps containing a large proportion of tallow or other high-titre fats are satisfactorily crutched at 160-170°F, grease and rosin soaps at 140°F. or even lower.

Heating the silicate solution before mixing with the soap is helpful. When a smooth dispersion has been obtained, the mixture should be gradually cooled and discharged from the crutcher at as low a temperature as is consistent with clearing the apparatus. A plastic mix is obtained at the lower temperature. In order to minimize the possibility of highly silicated soaps separating in the frames, they should be cooled as rapidly as practicable. Artificial cooling of the frames, or cooling by extrusion of the mixture through a water-cooled orifice such as that on plodders for making milled soaps, should be helpful.

Part of the reason that difficulty may be encountered in making silicated soaps from greases and similar low-titre fats and rosins, is that these soaps are often crutched at too high a temperature. Soaps from hydrogenated oils incorporate silicate less readily than those from tallow. Addition of cocoanut oil to tallow increases ease of incorporating silicate. Use of a relatively small amount of additional caustic soda solution aids in incorporation of large amounts of silicates, by lowering the viscosity of the mix, and possibly also by increasing the stability of the dispersion. The sudsing power of products containing more silicate than soap is increased by adding tetrasodium pyrophosphate, sodium phosphate and soluble sodium aluminosilicates.

The sodium salt of cellulose glycolic acid, used by the Germans during the war in amounts up to 25 per cent of the total soap, should assist emulsification of silicate-soap mixtures. Other materials for this purpose are various types of oxidized and chlorinated starches, sodium alginate, sodium pectate, sodium salts of polyacylic acids and sodium salts of oxidized cellulose.

The effect of materials such as rosin soaps in increasing the ease of incorporating silicates in soaps is attributable both to increasing the miscibility of soap-silicate mixtures, and to widening the range over which the soap becomes firm. Addition of good emulsifying and dispersing agents is helpful. Further research in the newer materials of this type is warranted. Another method of minimizing separation of soap-silicate mixtures is to add the builder in the form of a slowly soluble powder. R. C. Merrill, *J. Am. Oil Chemists' Soc.* 25, 84-95 (1948).

Detergent Builder

Sodium carboxymethyl cellulose is highly effective as a builder for synthetic detergents. Formulations containing sodium alkyl aryl sulfonate, alkaline salts, and sodium carboxymethyl cellulose, showed better detergency than high-quality fatty-acid soaps, in both carbon soil removal and whiteness retention on standard soiled cotton swatches. T. H. Vaughn and C. E. Smith, *J. Am. Oil Chemists' Soc.* 25, 44-51 (1948).

Micelle Concentration

By use of refraction, changes in the aggregation of soap in solution was studied, with the following results observed:

Refractive indices of dilute soap solutions are characterized by two straight lines which intersect at the critical micelle concentration. The critical micelle concentration of soap solutions is seen to increase with temperature. Little increase occurred over the range 20-40°C., but a marked increase occurred above 40°C.

The critical micelle concentration of a member of a homologous series can be determined if the values of other members of the same series are known. The critical micelle concentration is a logarithmic function of the number of carbon atoms in the hydrocarbon chain.

Addition of electrolytes as builders to soap solutions decreases the critical micelle concentration but this decrease does not follow the mass action law. The addition of potassium chloride to potassium laurate decreases the critical micelle concentration to less than 15 per cent of the original value.

Soap mixtures have critical micelle concentration values which are intermediate between the original values. Small mole ratios of the less soluble soap will show the largest changes in critical micelle concentration of the mixtures. In considering soap mixtures, the difference in the tendency of different soaps to form micelles controls the micelle formation of their mixtures. H. B. Klevens, *J. Phys. & Colloid Chem.* 52, 130-47 (1948).

Solubility of Detergents

The solubilities of fatty alcohol sulfates are given at 25° C. for the sodium and corresponding calcium salts. L. Bert, *Soap, Perfumery and Cosmetics* 21, 48-51 (1948).

Alkyl Group	*Sodium salt*	*Calcium salt*
Octyl	more than 50%	more than 400 gram/liter
Decyl	more than 45%	200-300 grams/liter
Lauryl	more than 40%	300-400 mg./liter
Myristyl	5-7.5 grams/liter	30-40 mg./liter
Cetyl	less than 0.5 gram/liter	less than 5 mg./liter
Stearyl	less than 0.2 gram/liter	less than 2 mg./liter

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Detergent Trends

One of the more important trends in the detergent field appears to be toward specialization, that is, development of numerous specific surface active compositions, each designed for an individual end use. This contrasts with the idea that a single superversatile product might be developed which would be suitable for all purposes. It is obvious that one single product will not give optimum results in the hundreds of individual commercial applications for surface-active materials. Even in the field of detergency itself, need for specialization is apparent.

The efficiency of a detergent depends not only on the chemical nature of the detergent, but also on the material which is being cleaned, the type of soil present, and the conditions under which the cleaning operations are carried out.

A second important trend is an increased emphasis on formulations and mixtures rather than on the development of new individual detergents. This is a recognition of the fact that most practical problems are best solved by the use of mixtures rather than of a single agent. This has long been recognized by soap producers and compounders, and is the basis of various speciality businesses, such as textile specialties, industrial cleaners, shampoos, etc. As the fundamental knowledge of surface-active effects increases, art of formulation is being transformed into a science. An example is the current widespread interest in the study of synergistic effects. which are admittedly highly specific. For example, combination of soap and synthetic in a shampoo, to avoid calcium deposition by the soap during rinsing, and excessive oil removal by the synthetic.

Another example is the use of polyphosphates, which not only serve as sequestering agents for hard-water salts, but improve even in pre-softened water. This also apparently holds true for the newer, stable organic sequestering agents such as carboxy methyl cellulose.

Non-ionic detergents mostly depend on the polyethylene ether grouping for solubilizing ability. This grouping may be joined to a nonpolar group through an ester linkage—which is sensitive to alkali—or it may be joined to a long-chain alcohol or to a phenol through a stable ether linkage. Technical advancement appears to be centering around petroleum based synthetic detergents. A. M. Schwartz, *Am. Perfumer* 51, 261-7 (1948).

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Evaluating Scouring Agents

A quantitative method for evaluating wool-scouring agents was developed, using uniform skeins of wool which had been uniformly soiled. By varying the proportions of soda ash, sodium metasilicate, and tall-oil soap in these tests, the amounts could be determined which gave the best scouring results at the lowest total detergent cost. Other detergents can be evaluated in the same way. The method yields reproducible characteristic scouring curves. E. A. Leonard and A. R. Winch, *Am. Dyestuff Reporter* 37, P202-8 (1948).

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Saturated Acids Separation

By treating oils with steam under a vacuum of 10-200 mm., the saturated fatty acids distill over first, then the fatty acids with one double bond are distilled, leaving a residual fatty glyceride with more than one double bond per molecule. For example, 100 kg. of corn oil with an acid value of 20 and containing 10 per cent of saturated fatty acids, 40 of oleic acid, and the remainder mainly linoleic acid, was treated as above, and gave 50 kg. of viscous oil with an acid number of 1.9, saponification number of 186, and acetyl number of 4. The distilled fatty acids amounted to 45 kg. and were substantially palmitic, stearic and oleic; 5 kg. of glycerine was also separated. The fatty acids had an acid number of 180. Sunflower oil has been treated in the same way. A Abbey, British Patent No. 593,569.

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Oils Antioxidants

Glycerides are stabilized against oxidation by addition of a small amount of betaine osazone, hydrazone, hydrazide, or amide. Simple derivatives of these compounds such as salts, are also effective. S. Shappiro, U.S. Patent No. 2,430,031.

Caustic Refining of Oil

In the caustic refining of vegetable oils using liquid mixing, the amount and kinds of phosphatides present in the oil govern the amount of caustic needed, the length of time of mixing, and the oil content of the soapstock.

A study of mist mixing shows that because of the small excess of caustic used and the rapidity of refining by this method, refining loss is lower than with liquid mixing. Also the refined oil is cleaner both as regards suspended soapstock and dissolved colloidal matter. R. H. Fash, *J. Am. Oil Chemists' Soc. 24*, 397-402 (1947).

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Hydrogen Peroxide Bleach

Hydrogen peroxide of 90 per cent concentration is now commercially available. It possesses the same general oxidizing action noted for more dilute solutions. However, it is a powerful oxidizing agent with distinct attributes of its own, indicative of the transition from the properties of pure hydrogen peroxide containing relatively small amounts of water.

Concentrated hydrogen peroxide, because of increased solubility and higher effective oxidizing concentration at the interface, shows promise for the bleaching of oils, fats, and waxes. Experiments have shown that 90 per cent hydrogen peroxide added to beeswax yields a superior bleach to that obtained when the same number of equivalents of 30 per cent peroxide is employed. Similarly, excellent results have been obtained in the bleaching of soluble and insoluble commercial nonionic synthetic detergents of the "Span" and "Tween" type. E. S. Shanley and F. P. Greenspan, *Ind. Eng. Chem. 39*, 1536-43 (1947).

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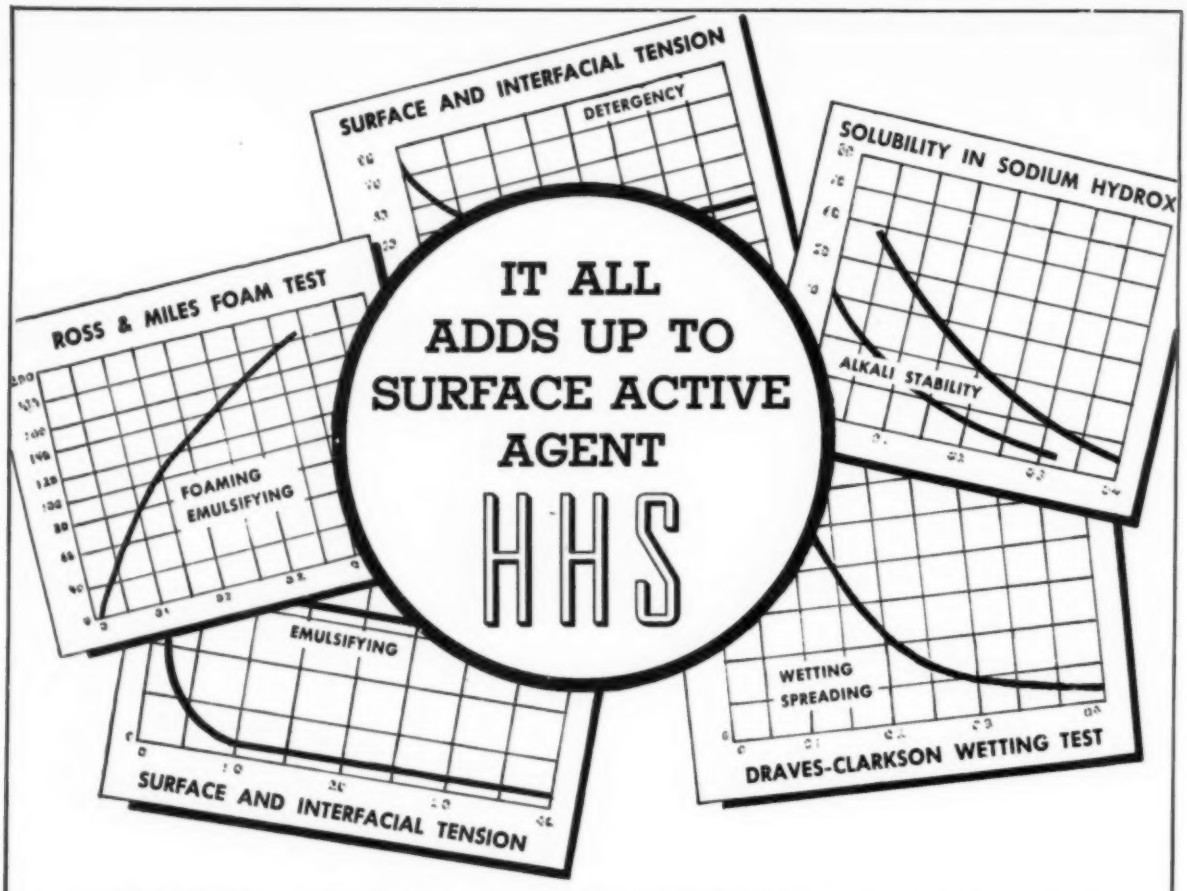
New Process for Soybeans

The solvent extraction of oil from soybeans is more profitable than the screw press process. The trend in new processing plants is therefore toward the solvent process, but a number of years will pass before solvent-processing capacity is great enough to take care of the entire bean crop. R. L. Kenyon, *Ind. Eng. Chem. 40*, 186-94 (1948).



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PRODUCTION *Clinic*

By E. G. THOMSSEN, Ph.D.

THE word flexible has many definitions, such as elastic, bendable, pliable and compliant. The definition of flexibility we like best is "the quality of being ready to yield." When applied to machinery and equipment the meanings take on an added importance, especially in plants where flexibility is necessary for smooth operating procedure. A piece of machinery or equipment that is ready to yield to many emergencies is a mighty handy contraption to have around in any plant. Plants which do not have large-volume production of one item, but require good equipment to make several products, are most interested in flexibility in machinery.

The importance of flexible equipment came to our attention quite forcibly recently. A manufacturer faced the problem of putting in a new, completely equipped plant. He made a large variety of liquid and semi-liquid products. When his plant was called upon to produce a certain item in a limited period of time however, the volume became considerable. The line comprised soap products, insecticides, sanitary products like liquid waxes and polishes, some liquid food specialties and some cosmetics. It had been the custom to make these products in a rather steady flow in smaller batches, which were filled mostly by hand operations or by slow, semi-automatic machinery. With the increasingly higher cost of labor and overhead, this procedure had reached the point where manufacturing profits were disappearing. It was difficult to increase the established sales price of several of the items. A survey indicated that even though an expenditure for new plant and new equipment was above normal prices at the time, the

increased costs could be absorbed within five years. The board of directors decided to go ahead and build and equip a new plant, cautioning the production department to go easy on both the size and type of new building and the amount of new machinery and equipment to be installed. The board strongly advised conservative expansion.

When those interested in carrying out the dictates of the management consulted with outside advisers, numerous interesting points arose. As to the building itself, this was left in the hands of the architect and building contractor, who worked closely with the plant men. Points arose such as: was it better to revamp the old building or build a new multi-story or one story building or sell the old plant and purchase another? Future expansion of the business was considered and other details came up as to what type of construction to use. These points are perplexing today to anyone who faces the question of a new plant. In this particular case it was decided to erect a one story building with a two-story structure across one end of the new plant. This made for the cheapest construction at the time in the particular location.

When the problem of machinery and equipment for the new plant was discussed, the poser of higher costs had to be met. The products which were to be made required processing equipment, storage tanks and filling equipment and the receiving, storage and shipping of raw materials and finished goods had to be considered. In normal times, when costs are not as great an item as now, it has been a safe policy to favor the idea of more space and larger machinery production than is actually required. As far as the storage space was concerned, the problem was largely solved by the use of lift trucks and pallet platforms, by which many materials can be piled high. High ceilings permitted storage space and as there was no basement, floor loads were not a consideration.

Processing and filling machinery came in for much discussion. There was a considerable amount of small capacity equipment in the existing plant. Would it pay to dispose of all the machinery and get new large capacity equipment? How about compatibility of certain products? Would contamination result if certain products were made in one mixer for example? Could the filling equipment be conveniently changed over to adapt it to various viscosities, products that foam, different filling rates, hot and cold filling, different types and sizes of cans or bottles, etc.? These important considerations had to be gone over carefully for each product. Not only was it necessary to regard different product and container factors as to the filler lines, but processing and storage of the various liquids had to be considered.

It required considerable planning and numerous meetings with various machinery manufacturers to solve various questions. In every case the question of flexibility was stressed. It was found that much automatic equip-

ment, especially for filling, was not adapted for the great variety of styles and sizes of packages with which the company had to contend. In the long run the firm ordered what was considered to be most adaptable for their purpose. The equipment has not been operating for many months, but the careful planning and insistence upon flexibility of machinery and equipment is paying off as the operation is working out more economically than had been anticipated.

Undoubtedly there are many other manufacturers who face this same problem of new plant and new equipment. Higher costs can be overcome by judicious planning and by having new machinery installed that can be used for a variety of purposes as in the case cited above.

New Mutual Solvent

We recently received a sample and information regarding a new product of considerable interest, from Norda Essential Oil and Chemical Co., New York. Known as "Myrosol," it is a colorless, practically odorless, very stable, oily liquid. It has excellent solvent properties and may be used as a partial or complete replacement for mineral and vegetable oils, being more stable than the latter. When applied to the skin it is readily absorbed without leaving any greasy after effect. The latter property suggests its use in shaving creams (lather and non-lather) and similar cosmetics. Other uses include cases where a mutual solvent is required when waxes or oils are compounded such as in polishes, liquid waxes, etc. Samples and prices are available upon request.

Novel Grinder

UNION Process Co, of Akron, O., manufactures a piece of equipment called the "Attritor". It combines the positive mechanical agitation of a colloid mill with the ball-mill grinding process. Through its use, dispersions of solids or semi-solids are possible having an average size of one micron and without occluding air. The machine grinds rapidly, requires little power and occupies small floor space. The grinding parts are inside the "Attritor" tank, which may be lined with chemical stoneware, flint, stainless steel or other non-ferrous hard facing alloys. The "Attritor" is available in both laboratory and production sizes. The grinding capacities of the tanks are from one to one hundred gallons and they deliver from five pints to 60 gallons of finished product. Vapor proof seal covers are available for volatile and inflammable liquids.

Filter Media

FILTRATION is an integral part of many manufacturing processes requiring wide variety of style and types of filter media. It is of utmost importance that the medium chosen be suited to the specific needs of the process. Filter Media Corp. of Hamden, Conn. offer many kinds of filter media. Included are cotton cloth, porous rubber, woven glass fibre, Dow's "Saran" and "Vinyon" woven into filter cloth, wool filters and prepared filter covers. These media come in porous, closely woven and heavy fabrics with medium porosity. The company will recommend the type of medium upon request.

Automatic Barrel Filler

The Penflex Sales Co., Philadelphia 42, offers their bulletin 54 to manufacturers interested in automatic barrel or drum fillers. The filler is automatic in action and operates without loss or overflow on practically all liquids. When the package is filled a metallic click signal announces it. If desired, one operator can handle several units simultaneously. The filler easily handles volatiles and viscous products. It is available in Monel metal if desired. The company also makes a line of flexible metallic tubing in sizes from one-half inch to eight inches inside diameter.

Solvent-Ventilation Bulletin

Hints on ventilation for small scale users of solvents are contained in a bulletin issued recently by the Safety Research Institute, Inc., New York. Good ventilation is essential wherever and whenever solvents are used, the bulletin states. It points out that unless operations such as degreasing, cleaning, thinning, etc. are provided with adequate ventilation, workers may inhale sufficient quantities of solvent vapors to cause illness. For occasional solvent operations, it is best to work outdoors on a breezy day, whenever possible, the bulletin states. When work must be done indoors, it should be carried out in an airy room near an open window. If adequate natural ventilation is not available, occasional small solvent jobs may be done safely by protecting workers with canister gas masks. However, it is pointed out, the mask protects only the worker who wears it. And care must be taken that other workers in the room are not exposed to solvent vapors.

Dust Collector Bulletin

Pulverizing Machinery Co., Summit, N. J., recently announced a new illustrated bulletin dealing with the "Mikro-Collector" of dust. The title of the four-page bulletin is "Optimum Recovery with the Mikro-Collector". Features of the new machine are described in detail in text and illustration. Special emphasis is placed on the ability of this equipment to handle damp dusts hitherto thought impossible to handle. The new principles involved in the "Mikro-Collector's" operation, which assures a perpetually clean filter are described. Filter rates, dimensions, weights and other details are covered in the bulletin which is available from the company.

New Flavor Concentrates

A new line of flavor concentrates featuring a high degree of refinement and concentration was announced recently by Charles C. Bryan, managing director of Firmenich & Co., New York. According to the company, a series of original discoveries has been adapted to make possible the new odor and flavor characteristics.

OTS Bibliographies

Special bibliographies of technical reports and documents on soap and detergents, the Fisher-Tropsch Process, fats and oils and chlorine are available free of charge from the Office of Technical Services, Department of Commerce, Washington, D. C., it was announced Apr. 8. The special bibliographies include listings of both American technological research re-

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Vestal Chemical Co.
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Chemical Mfg. & Distributing Co.
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Albert S. Selig
The Selig Co.
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George L. Simmonds
U. S. Sanitary Specty. Co.
Chicago

J. H. Zucker
State Chemical Co.
Cleveland

ports and reports based on investigations of enemy technology. Each special bibliography cites author, title and price of each report; a cross reference to the issue of the weekly *Bibliography of Scientific and Industrial Reports* in which an abstract of the report was published is also given. Requests for copies of the special bibliographies should be addressed to Reference Section, Office of Technical Services, Department of Commerce, Washington, 25, D. C.

Dispensing Paste Soap

Waterless Soap Co., Hales Corners, Wisc., recently announced a wall-mounted bracket which serves as a container holder for the company's product "Hyssop." The company points out that no mechanical dispenser has been developed for paste soap and the new holder acts as a dispenser for the 32 oz. size can.

Calcium Carbonate Booklet

"Precipitated Calcium Carbonates —Their Manufacture, Properties and Applications", a 48-page fully illustrated, two color booklet was announced recently by the Industrial Chemical Sales Division of West Virginia Pulp & Paper Co., New York. The object of the booklet as the author Robert H. Buckie, points out in his foreword is "to present information of practical value concerning the properties of . . . (precipitated calcium carbonates) and to describe also how (it) finds use in some important industries and processes."

Copies of the booklet are available by writing the company at 230 Park Ave., New York 17.

U.S.I. Product Listing

A six-page folder listing all of the company's chemicals, solvents and resins along with a brief description of the product acompanying each listing was announced by U.S. Industrial Chemicals, Inc., New York, early in April. Copies of the folder, "Products of U.S.I." are available free, by writing the company, in care of W. W. Newell at 60 E. 442nd St., New York 17.

Bobrick Metal Dispenser

A new metal soap dispenser model number 12 has just been announced by the Bobrick Manufacturing Corp., of New York and Los Angeles. Made of monel metal its capacity is over one quart. Features include a concealed wall fastening that makes it theft proof and a readily visible gauge that tells the attendant when refilling is necessary.

Bobrick's New Model 12 Dispenser

New MRM Gravity Filler

A new gravity filling machine designed especially for handling materials and containers which cannot be processed satisfactorily by either vacuum or pressure was described in a recent release of MRM Co., Brooklyn. The new, MRM "5-G Gravity Filling Machine" is recommended particularly for filling such materials as floor waxes, oils and similar products. The new filling machine is capable of filling gallon tins and other types of containers not easily filled by a vacuum machine. All size containers having a 3/8 inch mouth opening can be filled by the new "5-G" filler which can be adjusted to handle containers ranging from small sizes to one gallon. A larger, 10-spout gravity filler, the "MRM 10G" with its own individual automatic conveyor for carrying containers in and out of the line was also described in the release. With it containers stop for filling and then continue along the conveyor as soon as filling is completed. Parts are few and economical, stainless where needed and no skilled maintenance or operation is required.

New Triangle Folder

Triangle Package Machinery Co., Chicago, recently announced a new, six-page, two color bulletin describing its automatic vibratory feed weighers for weighing and filling of dry products into any style container. The principle of operation of the "Elec-Tri-Pak" weighers is presented diagrammatically. Models described in the booklet handle from 15 to 180 packages per minute in a range of 3/4 ounces to five pounds.

One of the illustrations in the folder is that of the installation at Armour & Co. for the packaging of "Chiffon" soap flakes into 14 ounce cartons at speeds up to 80 cartons per minute with a model A8A "Elec-Tri-Pak" weigher.

New Lab Stirrer

Baker Instrument Co., Orange, N. J. recently announced a new, high-power stirring device for laboratories. High torque is obtained from a universal type, 1/15 H.P. motor, which delivers 10,000 r.p.m. to armature shaft (without load). A second shaft is geared down to deliver a speed of 900 r.p.m. The propeller attaches to either shaft by means of a "Jacob's" 3/8 inch chuck. Optional rheostat control gives continuous speeds from 900 r.p.m. on one shaft to 10,000 r.p.m. on the other.

New Propeller Agitator

A new, cartridge type propeller agitator that is furnished with an electric alarm system which sounds a warning if the water supply that lubricates the laminated plastic bearings should fail was introduced recently by E. D. Jones & Sons Co., Pittsfield, Mass. Of all non-corrosive, stainless steel and bronze construction, the new agitator comes in various propeller sizes to meet particular chest

sizes. Five to 15 horsepower is required for the new agitator. It is designed to agitate materials having consistencies up to four percent.

Michel Product Guide

A new catalog-guide, dealing with" Michelene" surface active agents and related chemical specialties was published recently by M. Michel and Co., New York. Features of the 24-page booklet include: diagrams explaining the chemistry of the company's detergents, wetting and foaming agents, emulsifiers, penetrants, dispersants, softeners, etc.; charts showing applications of "Michelene" textile auxiliaries; a comprehensive listing of over 150 uses for surface active agents made by the company and complete data on selected chemical specialties made by M. Michel and Co. The guide is available to manufacturers, distributors and jobbers.

New Rheem Catalog

A new catalog illustrating and describing steel shipping containers for all types of products from soaps to insecticides was issued recently by Rheem Manufacturing Co., New York. Every type of single trip, returnable, light-weight, agitator, decorated and stainless steel container is shown. The catalog also has chapters devoted to the company's container coatings, construction details, container capacity charts and charts showing approximate car-loading capacities. Also listed are a number of drum accessories.

Copies are available from the steel shipping container division, 570 Lexington Ave., New York 22.

Hercules Issues Folder

Hercules Powder Co., Wilmington Del., recently issued a four-page, two-color folder, which discusses some of the recent developments of its research laboratories.

New Electric Rat Trap

A new, automatic rat trap that operates electrically and kills and ejects the rat was developed recently by Radar Rat Traps, Rochester, N.Y.

New Agitated Reactor

A new "Standard-Plus" agitated reactor for processing synthetic detergents, insecticides, fats and oils and soaps, was announced recently by Industrial Process Engineers, West

New York, N. J. The unit is made in compliance with the A.S.M.E. Code for any weldable material such as steel, stainless steel, monel, nickel, inconel and clad steel with any of these materials products listed above. Equipment for particular requirements is provided such as direct or indirect heating by oil, gas, steam, electricity, or Dowtherm; heat exchangers, condensers, receiving, piping and valves. Special consideration is given to the correct type of agitation to achieve best results. Turbine, propeller, anchor and paddle agitation, depending on the processing problems are furnished. Variable speed agitators can be used when the viscosities change during processing.

Folder on Indonesia

Although political upheaval spared most of the palm oil plantings in Indonesia, some processing factories were destroyed or damaged according to a pamphlet, "America's Business Stake in Indonesia," issued last month by the Netherlands Information Bureau, New York. Formerly 80 percent of American consumed palm oil came from Indonesia, or nearly 125,000 tons, worth over $25,000,000 at "current" prices. Among American companies operating in Indonesia is the soap plant of Procter & Gamble Co., Cincinnati, in Java. Because of the settlement of differences between the Indonesian Republic forces and the Netherlands, it is hoped that production of palm oil may begin to approach pre-war production rates during the coming year.

Ethylene Thiourea Report

Rohm & Haas Co., Philadelphia, recently released a bulletin on ethylene thiourea (2-imidazolidinethione); which may be used as such or as an intermediate for insecticides, fungicides, etc. Qualitative solubility tests carried out with a number of organic solvents have indicated that ethylene thiourea is slightly soluble at room temperature, and appreciably soluble when warmed, in ethyene glycol and pyridine. It is relatively insoluble at room temperature, according to the bulletin, but is soluble when warmed in methanol, ethanol, and naphtha, and is best recrystallized, when necessary, from one of these solvents or from water. It is essentially insoluble at all reasonable temperatures in the following solvents: acetone, choroform, benzene, petroleum ether, hexone, dioxane, butoxyethanol, acetic acid, butanol and ethyl acetate.

New Orbis Catalog

A new, 28-page catalog and price list was published recently by Orbis Products Corp., New York, and is now available upon request. The booklet covers the complete lines of essential oils, insecticides, drugs, gums and perfume bases made by the company.

Lacquer-Lined Drums

First Canadian production of lacquer-lined steel drums for the chemical and food industries there was inaugurated Apr. 2, by Rheem Canada, Ltd., Hamilton, Ont., subsidiary of Rheem Manufacturing Co., New York.

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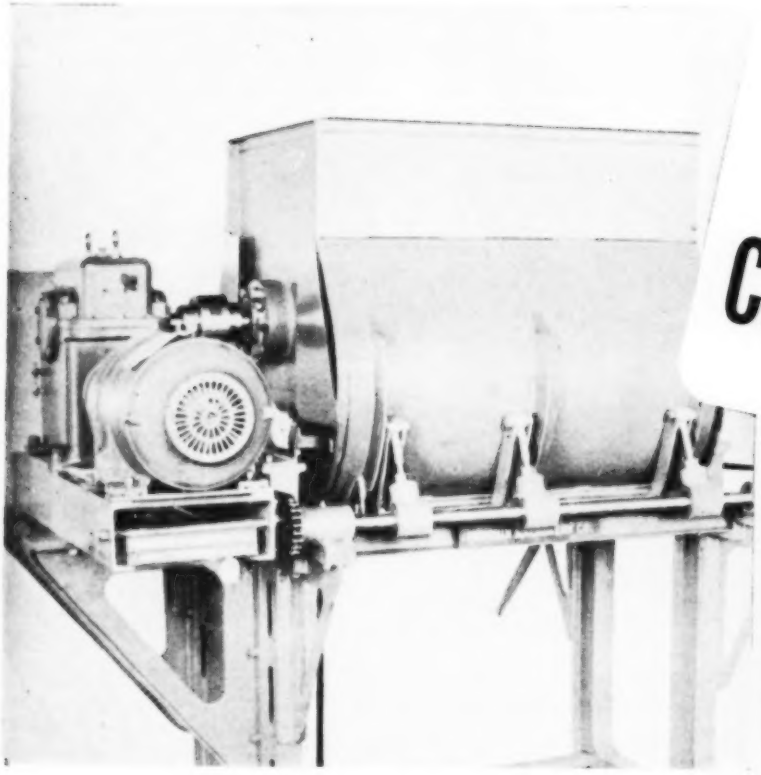

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PRODUCTS AND PROCESSES

Water Softening Agent

A water softening agent soluble in water comprises a reaction product of milled sodium aluminate with starch and a mixture of starch and potassium tannate. The amount of tannate is equivalent to 2-4 per cent of tannin on the weight of sodium aluminate. J. O. Samuel and G. Hopkins, to Unifloc Reagents Ltd. Canadian Patent No. 447,740.

Shaving Cream

A shaving cream must be neutral and give a profuse stable foam. The following formula gives a nonirritant emollient cream:

	Parts
Stearin	3
Peanut oil	1
Cocoa butter	1.5
Potassium hydroxide, 38°Be.	3
Potassium chloride soln, 15% as required	
Lanolin	0.01
Water	3

Saponify the cocoa butter with about half its quantity of 38°Be. caustic potash. Warm and add with stirring the stearin and peanut oil until a homogeneous mixture is obtained. Finally saponify to neutrality with the remainder of the caustic potash diluted with water as indicated. Knead the cream with lanolin, add perfume and allow to set. If too thick, add a suitable amount of potassium chloride solution. Addition of a small amount of a 5 per cent solution of thymol as preservative is also desirable. *Indian Soap J.* 13, 124 (1947).

Nonionic Emulsifier

A composition consists essentially of about 24 parts by weight of a condensation product of sorbitan monostearate and ethylene oxide in a molar ratio of about 1:4, and about 6 parts by weight of condensation product of sorbitan monostearate and ethylene oxide in a molar ratio of about 1:20 emulsified in water. N. F. Johnston, to R. T. Vanderbilt Co. Inc. Canadian Patent No. 447, 609.

Flash Burn-Cream

The following formula was selected for a flash burn-preventive cream after 37 experiments with many possible constituents:

	Percent
Bleached dewaxed shellac	13.7
Isopropyl alcohol, 90%	28.48
Bodied linseed oil, 2-3 viscosity	3.5
Triple-pressed stearic acid	0.15
Triethylene glycol bis(2-ethyl hexoate)	0.8
Diethylene glycol monoethyl ether	1.1
Titanium oxide, cosmetic grade	37
Sodium bicarbonate	2.25
Magnesium stearate	8
Methyl salicylate	2.5
Sodium alkyl sulfate	0.3
Iron oxide, lemon shade	1.6
Mineral black	0.6

The cream formed a nonrigid, finely reticular film causing minimal discomfort and retaining its effectiveness on the body at least 30 hours. Flashes from smokeless powder, cordite or a powder containing potassium chlorate, sugar, and magnesium, only slightly browned a filter paper coated with the cream, and charred an unprotected control paper 20 cm. away. Five rabbits were protected by the cream against such flashes, and men who had been swimming in salt water and exposed experimentally to the flashes suffered only mild burns. C. S. Glickman, *Australia Pharm. Notes* 25, 115; through *Chem. Abs.*

Textile Detergents

There is probably a "best" type of detergent for each stage of textile processing. Although a pure synthetic detergent may be equally useful for scouring raw textile stock and for level dyeing of wool in an acid medium, a trademarked product made with the same active ingredient but with soda ash present as builder, would be suitable for raw stock scouring but definitely hazardous in an acid dyebath. In like manner, a synthetic detergent possessing marked adsoption qualities on cellulosic fibers, could impart softening and lubricant properties, whereas a plain Glauber's salt dilution of the active ingredients would possess the same or even greater scouring ability, but might be greatly lacking in lubrication.

One of the products mentioned often by the investigating teams returning from Europe is the sodium salt of the condensation product of oleic acid chloride and sarcosine, with the formula $C_{17}H_{33}CON\ (CH_3)\ CH_2\ COONa$. Because the caroxylic group characteristic of soap is retained the product is not completely stable to hard water, but is superior to soap in this respect. It is considered to have a specially mild action on the skin and may be incorporated into shaving soaps. Its use in the textile industry is as a fulling compound.

Immediate use of a detergent is of value in the first operation on the cloth in a finishing plant, when a combination of desizing, detergents, and wetting-out ability is useful. Nonionics are found efficient here in loosening the oil and waxes present in the greige goods. During the rinse the fibers are cleansed and no waste of product occurs. Carryover into the kier renders the detergent action even more efficient. Nonionics exhibiting no deleterious effects on enzymes and showing high wetting efficiency at 120°-160°F. are the best choice in such baths. A concentration of one pound per 100 gallons gives both wetting and detergency.

Synthetics have made a definite place for themselves in textile processing but should be applied in relation to the particular problem involved. H. C. Borghetty, *Am. Dyestuff Reporter* 37, P112-3, 130 (1948).

Lauryl Alcohol Preparation

A method for the preparation of lauryl alcohol which is superior to the Bouveault-Blanc process using sodium hydroxide and anhydrous alcohol, is by the catalytic hydrogenation of coconut oil. A pressure of 200 kilograms and a temperature of 300°C. are needed. The catalyst must be prepared with care and consists of copper chromite. It can be re-used several times without loss of activity. A Willemart, M. Loury, and P. Everaerts, *Oleagineux* 3, 68-71 (1948).

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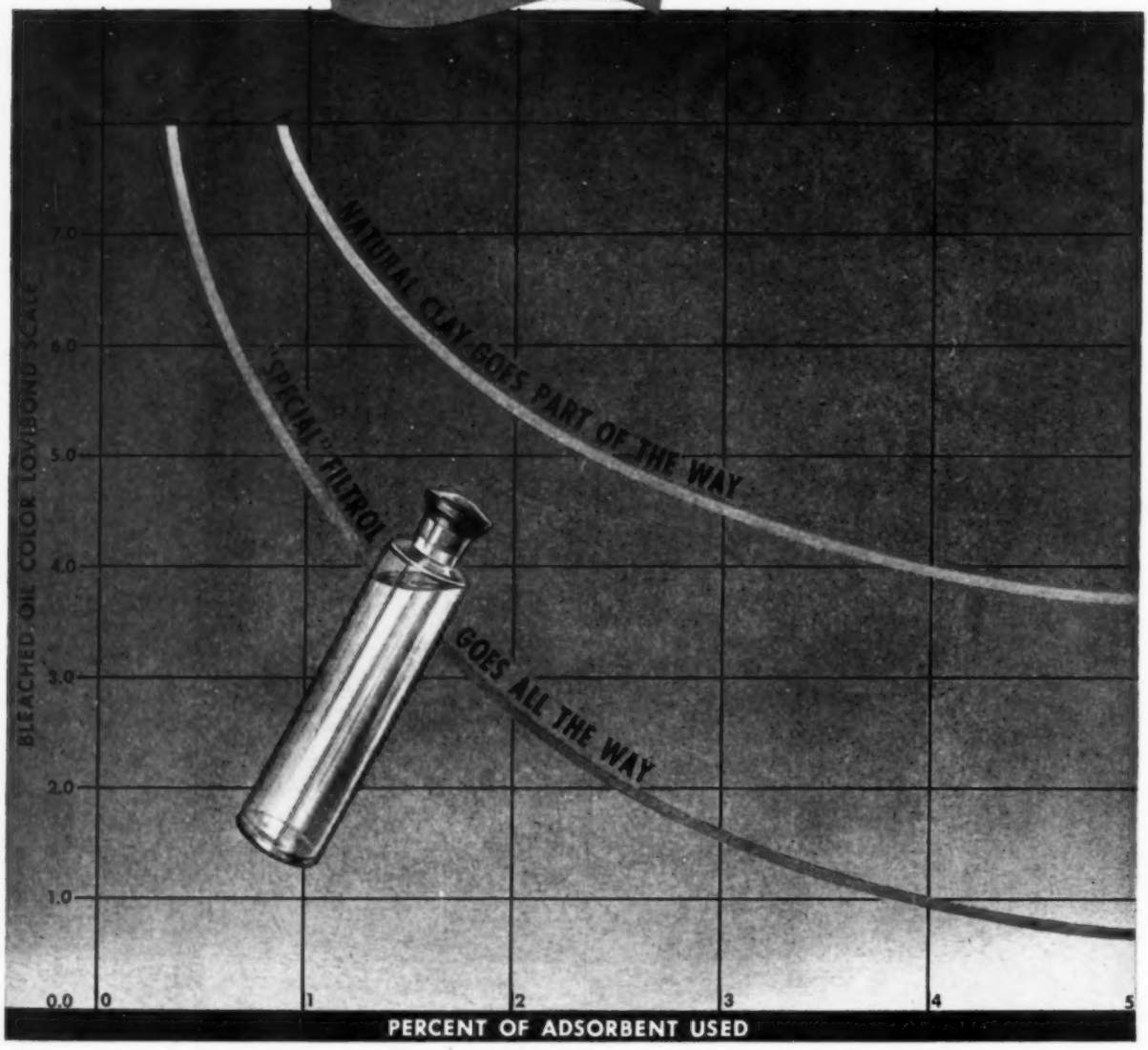

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No. 2,436,919, Fly sprays comprising an N-alkyl-phthalimide and DDT, patented March 2, 1948 by Samuel I. Gertler and Herbert L. J. Haller, Washington, D. C., assignors to the United States of America, as represented by the Secretary of Agriculture. A method of destroying flying insects is covered comprising contacting said insects with a composition containing a member selected from the group consisting of N-butylphthalimide and N-amyl-phthalimide as its essential knockdown agent and 2,2-bis(p-chlorophenyl)-1,1,1-trichloroethane as its essential active insecticidal ingredient.

No. 2,436,920, Fly sprays comprising an N,n-dialkylcinnamamide and DDT, patented March 2, 1948 by Samuel I. Gertler and Herbert L. J. Haller, Washington, D. C., assignors to the United States of America, as represented by the Secretary of Agriculture. A fly spray comprising a member is selected from the group consisting of N,N-dipropylcinnamamide and N, N-diisopropylcinnamamide as its essential knockdown agent and 2,2-bis (p-chlorophenyl)-1,1,1-trichloroethane as its essential active insecticidal ingredient, incorporated in a mineral oil carrier.

No. 2,437,253, Detergent composition, patented March 9, 1948 by Lloyd F. Henderson and Bernard L. Maxwell, Reading, Mass., assignors to Lever Brothers Co., Cambridge, Mass. In a process of removing soil from an article by washing with water, the steps taken consist of adding to said water a soluble alkaline earth compound to impart a hardness of approximately the equivalent of 300 parts per million to said water, adding a water-soluble compound that forms a water-insoluble precipitate with the alkaline earth compound, and maintaining said precipitate in an insoluble but dispersed condition by the presence in said solution of a water soluble phosphate having a negative valency of at least four.

No. 2,437,427, Insecticidal compositions comprising a phenyl ester of caprylphenoxyacetic acid, patented March 9, 1948 by William F. Hester, Drexel Hill, and W. E. Craig, Philadelphia, Pa., assignors to Rohm & Haas Company, Philadelphia, Pa. An insecticidal composition is patented comprising as a toxic agent a water-insoluble, organic solvent soluble phenyl caprylphenoxyacetate dispersed in a carrier.

No. 2,437,527, Insecticidal compositions from halocaprylphenoxyacetic acid, patented March 9, 1948 by William F. Hester, Drexel Hill, and W. E. Craig, Philadelphia, Pa., assignors to Rohm & Haas Company, Philadelphia, Pa. An insecticidal composition which comprises as a toxic agent a halocaprylphenoxyacetic acid and a carrier therefor.

No. 2,437,643, Separation of neutral fat from tall oil, patented March 9, 1948 by Alfred G. Houpt, Springdale, Conn., assignor to American Cyanamid Co., New York. In a process of separating the fatty acid soaps of black liquor soap from the rosin acids by forming a hot, substantially anhydrous solution of fatty acids, rosin acids and an amount of alkali sufficient to neutralize only the fatty acids in an alcoholic organic solvent in which the alkali soaps of the fatty acids are soluble hot but not cold, and in which the rosin acids are soluble hot and cold, and, after cooling said solution to precipitate the soaps of the fatty acids which are then separated from the mother liquor, the steps which comprise adding to the mother liquor sulphuric acid diluted with anhydrous alcoholic organic solvent in an amount of about 0.25% in excess of that required to neutralize the alkalinity of the mother liquor, thereby setting free residual fatty acids contained therein, heating the acidified mother liquor to esterify residual fatty acids with the anhydrous alcholic organic solvent annd to isomerize rosin acids to crystallizable forms, removing the solvent by distillation, extracting the rosin acids, unsaturated fatty acid esters, hydrocarbons and sterols from the still residue with naphtha, adding to the resulting naphtha solution dilute aqueous alkali in an amount 1.1-2.0 times that equivalent to the acid present, seperating the naphtha solution from the aqueous rosinate solution by gravity separation, and heating the naphtha solution from the last-named separation to distill off the naphtha and leave a residue containing sterols and esters of unsaturated fatty acids.

No. 2,437,706, Hydrobleaching glyceride oils, patented March 16, 1948 by William J. Paterson, Newton Highlands, Mass., assignor to Lever Brothers Co., Cambridge, Mass. The patent covers the treating of the oil at a temperature of the order of about 170 to 250°C. with hydrogen under superatmospheric pressure for not more than about 60 minutes in the presence of not more than about 0.5% of a coprecipitated catalyst having the general formula Fe-X-O in which X represents at least one metal selected from the group consisting of copper, silver and gold.

No. 2,438,169, Manufacture of detergents, patented March 23, 1948 by Lester Francis Hoyt, East Aurora, N.Y., assignor to Allied Chemical & Dye Corp., New York. The patent covers the manufacture of a milled soap from a mixture comprising water and at least the following components: (1) a soap which forms solid masses under normal atmospheric conditions and which is selected from the group consisting of the alkali metal, ammonium, and organic amine salts of higher fatty acids containing 10 to 20 carbon atoms, and (2) a higher petryl sulfonate, the improvement which comprises incorporating (3) starch into a mixture of said type containing an amount of (4) inorganic salt ranging from 0% to 25% of the weight of the mixture, milling and plodding the resulting mixture; and controlling the workability of the mixture in the milling and plodding operations by proportioning the amounts of components (1), (2), and (3) so that their relative weights, on the basis of a total weight of 100 parts of components (1), (2), (3), and (4), lie within the following ranges:

Component:	Parts
Soap....	15 to (85-X), where X equals the weight of inorganic salt
Higher petryl sulfonate....	at least 6
Starch.....	5 to 40

and limiting the amount of water in said mixture to 6 to 15 parts per 100 parts of the total weight of components (1), (2), (3), and (4).

No. 2,438 370, Insecticide, patented March 23, 1948 by Allen H. Lewis, Berkeley, Calif., assignor, by mesne assignments, to California Research Corp., San Francisco. An insecticidal composition is patented which comprises as its principal toxic ingredient pyrethrum and the benzene sulfonic acid amide from the reduced nitrogen bases from petroleum.

Laboratory Performance Test for Detergents

A NUMBER of detergents used in dishwashing and dairy sanitation were studied using a washing performance laboratory test first developed by Mann and Ruchoft (Pub. Health Rep., 61:887, 1946). This test used a standardized technique for soiling, baking, washing, rinsing, drying, and examining microscope slides employing a special washing machine and a photometer. The present study, working with unknown detergents and using waters of varying hardness and composition, was undertaken in order to confirm the results of Mann and Ruchhoft and develop a simple reproducible test for the use of the industry as well as health officials.

A 105 gram quantity of Hucker type standard soil was added to 300 ml. of distilled water and the mixture was mixed and strained through four thicknesses of cheesecloth at 35°C. into Coplin staining jars. Soil mixtures were adjusted to a constant viscosity in order to standardize concentration. The clean slides, in Coplin racks, were soiled, baked dry and finally washed in a 0.3 percent concentration of the detergent at 60°C. and rinsed in near boiling water. Light transmission readings were made on the clean, soiled, and washed slides and percentage soil removal calculated by application of Lamberts Law. Both a laboratory constructed photometer and a commercially built photoelectric colorimeter were found to be satisfactory for these readings.

Three or more different runs were made using no detergent, castile soap, trisodium phosphate, and sodium carbonate as standards, and ten detergents furnished as unknowns. These trials were run in waters of eight different hardnesses, viz; distilled water, zeolite softened water, city water of moderate hardness (100 ppm), natural hard water (300 ppm), and zeolite-softened water hardened by adding 60 parts of calcium and 40 parts of magnesium measured as calcium carbonate to give final hardness of approximately 75, 125, 270, and 600 ppm expressed as calcium carbonate.

The data presented on the per cent of soil removed indicate that the hardness of the water used greatly influences the activity of certain detergents. Borax was classed as a poor detergent in any of the waters used. Sodium carbonate was found not as effective as the other detergents used and showed very poor detergency in very hard water. Trisodium phosphate gave good results in waters of about 300 ppm but only fair results in most of the other waters. Some of the proprietary detergent products were exceedingly ineffective in very hard water (600 ppm) but otherwise showed good ability to remove the test soil. The other proprietary products showed excellent, good, or fair removal except with very hard water where they were not very efficient.

The data showed that the modified technique of this test will give satisfactory checks on similar products and will serve as a satisfactory means of rating detergents as good, fair, or poor, depending upon the important factor of the composition of the water used. The method appears to offer a practical and reliable means of grading dishwashing detergents upon a performance basis, however the variations obtained among replicate trials for certain detergents would indicate the necessity of averaging the results of several runs in order to rate a detergent properly. Since the greatest variations generally occur with the poorer detergents, these inconsistencies might be used as a factor in disqualifying a detergent for use in water with which it gives such results. William G. Walter, Dept. Botany and Bact., Montana State College, Bozeman, Mont. *J. Pub. Health*, 38, P. 246, Feb, 1948.

Role of Synthetics

Wool scouring with synthetics keeps the wool loose, free from felting, and results in a soft and supple handle. Anion-active detergents such as the sulfated fatty alcohols and esters, amide sulfonates, alkyl aryl sulfonates, and glycol ether sulfonates, are preferred. Nonionic detergents are useful in washing prints, where metallic ions may be present.

Certain detergents have been shown to be more efficient than soap for washing woolen garments, even in soft water. The best type of synthetic for cotton washing is the amide sulfonate type, in which the amide grouping increases substantivity. Soap-synthetic detergent mixtures are useful under hard-water conditions. R. Leslie, *Manufacturing Chemist 18*, 539-45 (1947).

Soap in Organic Solvents

The behavior of sodium oleate, sodium stearate, and sodium palmitate toward 40 different organic solvents, was studied. These soaps do not dissolve in most solvents at room temperature, but swell on heating and give clear mobile solutions near the boiling point of the solvent. On cooling, one of four things may happen, depending on the particular system: (1) the soap remains in solution; (2) it crystallizes out; (3) it forms a pseudogel; or (4) it forms a true gel. In general the capacity of a system to form a gel increases roughly with the boiling point of the solvent. Gels were formed by the soaps in xylene, mesitylene, cumene, cymene, and pinene, with more or less syneresis. M. Prasad, G. S. Hattiangdi, and B. K. Wagle, *J. Colloid Sci. 2* 467-77 (1947).

Ammonia Hydrogenation

Edible and inedible fats and oils can be hydrogenated successfully using dissociated ammonia gas. Lard and fatty acids were both hydrogenated to iodine values below 5. A. Van de Erve, W. A. Jacob, and R. W. Bates, *J. Am. Oil Chemists' Soc. 25*, 60-3 (1948).

Supercooling Oils

For the refining of oils, an apparatus is designed for continuous treatment out of contact with the atmosphere and light, by supercooling them while at the same time preventing their congealing. H. L. Murray, to Murray Deodorisers, Ltd. U. S. Patent No. 2,433,475.

Hydrolysis of Soap Solutions

The pH of the laurates, myristates, palmitates, and stearates of sodium and potassium at 25° and 50°C. was determined by use of a glass electrode. In general the concentration of hydroxyl ion ranges from 0.001 to 0.0001 normal; for the less dilute solutions of the higher soaps, the upper limit is exceeded by several fold, and in the more dilute solutions the concentrations may fall beneath the lower value. Solubilized hexane reduced the pH of potassium and sodium laurate slightly. Potassium or sodium chloride reduced the pH soap solutions over a certain range but caused a slight increase in a narrow intermediate stage.

Using the pH values obtained the actual concentration of fatty acid in the soap solutions was calculated, and was found to be less than the saturation concentrations obtained by conductivity measurements through the entire range investigated. Free fatty acid, therefore, never separates as such from pure soap solutions unless acted on by excess of acid.

In general potassium soaps hydrolyze more than the corresponding sodium soaps. The difference is slight for the laurates but it is considerably greater for the myrisates, palmitates, and stearates in higher concentrations at 25°C. The difference is appreciably smaller at 50°. The percentage hydrolysis for the laurates is very much less than for the higher soaps. J. W. McBain, P. Laurent, and L. M. John, *J. Am Oil Chemist's Soc.* 25, 77-84 (1948).

Soap Clarification Equip.

An article by Dr. E. G. Thomssen in the April issue of *Soap & Sanitary Chemicals* discussing the clarification of liquid soap showed several illustrations of equipment used as installed in the plant of the Chicago Sanitary Products Company, Chicago, Illinois. This equipment was made by the Graham Manufacturing Co., Inc., 415 Lexington Ave., New York, 17, N. Y. Through error the manufacturer of the equipment was not credited for the photographs in our April issue.

Washing Aluminum

Aluminum can be washed with alkalies if a protective agent is present. To study the effect of alkalies, aluminum plates were immersed in the following solutions at room temperature and at elevated temperature: 0.1-0.3 per cent caustic soda 0.25-1 soda ash, 0.25-0.5 trisodium phosphate, 0.5 soda ash-0.5 trisodium phosphate, the same solutions with addition of varying amounts of sodium silicate to give a protective film, and 0.25-1 per cent of common household soap.

Alkaline solutions had a corrosive action on aluminum, with trisodium phosphate intermediate between caustic soda and soda ash. Small additions of sodium silicate aggravate corrosion by caustic soda; the protective effect does not begin until the silicate is used in an amount double that of caustic soda. Addition of 0.025-0.05 per cent of sodium silicate to the soda ash solutions (about 0.5 per cent) sharply reduced corrosion, and 0.5 per cent of sodium silicate

stopped it completely. A similar result was observed with 0.5 per cent of trisodium phosphate. Use of 0.5 per cent of trisodium phosphate, 0.5 per cent of soda ash, and 0.25 per cent of sodium silicate gave almost no effect on the aluminum plates at either room or elevated temperature. Soap does not cause corrosion. L. Karunina, *Myasnaya i Molochnaya Prom. 1947*, No. 6, 75-6 through *Chem. Abs.*

Ester Interchange

Cocoanut oil, soybean oil, and Japan wax were heated with glycerol at 240-50°C. for three to five hours in an atmosphere of carbon dioxide to produce monoglycerides of fatty acids by reesterification. The reaction is selective. Fatty acids of lower molecular weight and higher unsaturation are the ones principally reesterified, while those of higher molecular weight and lower unsaturation are mostly left unchanged. V. S. Kawai, *J. Soc. Chem. Ind. Japan* 44, 705-6; through *Chem. Abs.*

Soda Ash as Softener

The lather produced in exhausted laundry waters when these are boiled with soda ash, can be attributed to the formation of sodium soaps from the suspended calcium soaps. Samples of two grams of calcium oleate were boiled for four hours with varying quantities of water and soda ash. After filtration, the amount of calcium carbonate was determined volumetrically. The quantities of soda ash required to transform half of the calcium oleate into sodium soap were 210, 66, and 9 times the theoretical amount if 1000, 200, and 33 ml. of water, respectively, were employed. P. Anglaret, *Bull. mens. ITERG*, 1947, No. 11,31; through *Chem. Abs.*

Fatty Acids in Soap

A rapid method of determination of total fatty acids in soap is the following: Dissolve 5 grams of soap sample in 50-100 ml. of hot water and separate fatty acids by addition of dilute mineral acid to a red methyl-orange end point. Filter through a wet fluted filter paper and wash well with hot water. Dissolve the fatty acids in a few ml. of ether and transfer to a weighed extraction flask. Distill off the ether. A beaker may be used instead of a flask, when the ether is allowed to evaporate on a hot plate. Dry and weigh. The results by the rapid method were usually a small fraction of a per cent higher than by the usual procedure. *Seifensieder-Ztg.* 73, 225 (1947).

Antioxidants

Soap stock obtained in the alkali refining of vegetable oils is extracted with volatile hydrocarbons or chlorinated solvents. The extract is separated and the solvents are evaporated, to yield a residue which serves as an antioxidant. The residue may be further extracted with a solvent such as acetone to give a more concentrated agent. L. O. Buxton, to Nopco Chemical Co. U. S. Patent No. 2,433,593.

Effect of Dentifrices

The main effect of dentifrices is that of the abrasive present, which should be capable of removing freshly deposited film and plaque without scratching the tooth. The dentifrice should also have no dissolving action on the tooth structure. Experimental results based on reflectance measurements and microscopic appearance, showed effects of different abrasives to be as follows:

1, Calcium carbonate, both extra heavy and standard, produces a marked abrasion of the tooth surface. Because of this resulting rough surface, these abrasives posses no polishing action and will actually cause extreme dulling of a naturally smooth, lustrous enamel surface.

2. Dicalcium and tricalcium phosphate are rather inert in regard to their polishing action. They raise the luster very slightly on a dull surface and do not produce any marked dulling of a highly polished surface.

3. A metaphosphate plus calcium phosphate agent is superior to all of the other abrasives tested, in terms of its ability to polish the enamel surface. It will raise the luster on a dull tooth, sometimes as high as five luster divisions. Microscopically, it shows no abrasive action, in terms of actually scratching the surface. Cleansing can be achieved without scratching.

Research with popular dentifrices for comparison with the abrasives just listed, leads to the conclusion that in general the action of the dentifrice closely parallels that of its principal abrasive.

Raising the luster of the teeth and preventing tooth decay are two different procedures. It is true that a clean tooth will not decay, but that means it must be microscopically clean. Tooth decay seldom starts on the easily accessible surfaces visible to the outside. Most of it starts in hidden fissures which cannot be reached by a toothbrush. Actually a dentifrice is primarily a cosmetic agent used to clean and polish the visible surfaces of the teeth and to stimulate a sensation of cleanliness and freshness of the mouth. Use of a proper mouthwash in combination with brushing may be of therapeutic significance, but much work needs to be done to establish this. R. W. Phillips and G. VanHuysen, *Am. Perfumer 51*, No. 1, 33-7 (1948).

Guanidine Soaps Studied

Determination of surface tension, emulsifying power, deflocculating power, and practical washing ability, showed that guanidine soaps compare favorably with the usual alkali soaps. From a purely economic point of view, however, the future of these compounds probably does not rest with their value as cleaning compounds. They should find their major application as emulsifying agents in wax dispersion, drug and cosmetic preparations, food emulsions, and water-emulsifying cutting oils. M. Z. Poliakoff and G. B. L. Smith, *Ind. Eng. Chem. 40*, 335-7 (1948).

Wool Piece Goods Scouring

Tests conducted in laboratory scouring equipment as well as in dolly washers and continuous scouring machines have indicated that alkyl aryl sulfonate is a very efficient scouring agent for the removal of emulsified mineral oil lubricants from wool piece goods. The synthetic detergent may be used by itself to remove the mineral oil compositions or may be built with suitable inorganic salts such as sodium chloride or sodium bicarbonate. The best scouring results are obtained under neutral or slightly alkaline conditions. High alkalinities should especially be avoided. The type of salt used as a builder has an important bearing on the scouring efficiency of the synthetic detergent. O. M. Morgan, *Am. Dyestuff Reporter 37*, 93-5 (1948).

Synthetic F. A. Soap Odor

The outstanding adverse criticism of soaps made in Germany from synthetic fatty acids is their unpleasant odor, and the unpleasant and persistent odor imparted to the skin when washed with the soap. This odor on the skin is noticeable even when the synthetic fatty acids form only 10-20 per cent of the fat charge of bar soaps. The odor is not found on clothes washed in soap powders made from synthetic fatty acids, nor does it develop on the clothes after storage. There is no evidence that the soap has any other adverse effect on the skin. *Chem. Trade J. 122*, 89 (1948).

Wool Waste Fatty Acids

Wool-scouring wastes have an average analysis in p.p.m. as follows: Grease 8500, suspended solids 11,500, alkalinity 6700, oxygen consumed 1800, B.O.D. 6000, and nitrogen 1000. Acid cracking has been used for years, but the process is highly odorous and the effluent is unsatisfactory for discharge in a stream. The centrifugal process recovers only half the grease, and the effluent is also unsatisfactory. Treatment of the wastes with lime and chlorine gas separates the grease as a scum which when heated and filter-pressed produces a good grease recovery. The results, however, are quite variable with different wastes.

The hypochlorite process has been most successful and consists in treating the wastes with calcium hypochlorite and aeration, which quickly separates the greases and soaps from the liquid in large curds. After 8 hours' settling, the clear supernatant liquor is sent to the sewer; the greasy sludge is acidified to pH 4.0-5.0, and a further separation of grease and water is caused by the liberated chlorine gas. The sludge from this process is heated to 190°F. and filter-pressed. Steam is applied to the presses until 70-75 per cent of the grease is removed. The cake may be disposed of on land and dries without odor. The grease is steamed, treated with mineral acid, and separated. It contains 2 per cent moisture and 5.10 per cent free fatty acid and is now worth 11 cents per pound. Although the return from the grease will not pay for the total cost of treatment, it is a sizable item. The effluent has a B.O.D. of 500-600 p.p.m. but has been reduced 80-90 per cent. H. A. Faber, *Sewage Works J. 19*, 248-55 (1947).

Solvents for Oil Extraction

Comparison of ethanol, isopropanol, isobutanol, ethylene dichloride, trichloroethylene, carbon tetrachloride, and hexane, for extraction of soybean oil, showed ethanol to give the best results with respect to color of oil, meal, and protein. It also served as a debittering agent for the soybean meal. A. C. Beckel, P. A. Belter, and A. K. Smith, *J. Am. Oil Chemists' Soc. 25*, 7-9 (1948).

SANITARY PRODUCTS

A SECTION OF SOAP

AMONG manufacturers of chemical specialties for the janitor supply trade, profits have taken a sharp drop, proportionately a sharper decline than volume. Demand for lower prices by jobbers under threat of making certain products themselves is reported playing a part. And, as might be expected, this has brought to mind among some manufacturers a defensive strategy,—selling large users direct if they are forced to do so in self defense. In any business, self-preservation is a powerful factor. And it is something for jobbers and supply houses to think about under today's conditions. If a manufacturer cannot make a living selling to the jobber, he may undertake to sell the jobber's customer direct. It has happened before.

RECENTLY we received a copy of a circular from a chemical laboratory offering formulas for sale. The list includes something over five hundred well-known branded and nationally advertised products. Chemical analyses of these products, listed by brand name, are offered at prices varying from six to fifteen dollars each according to the number purchased. Manufacturing formulas "including all information to permit immediate production, sources of raw materials, equipment needed, and the process of manufacture" are offered at twenty-five dollars each, cash in advance.

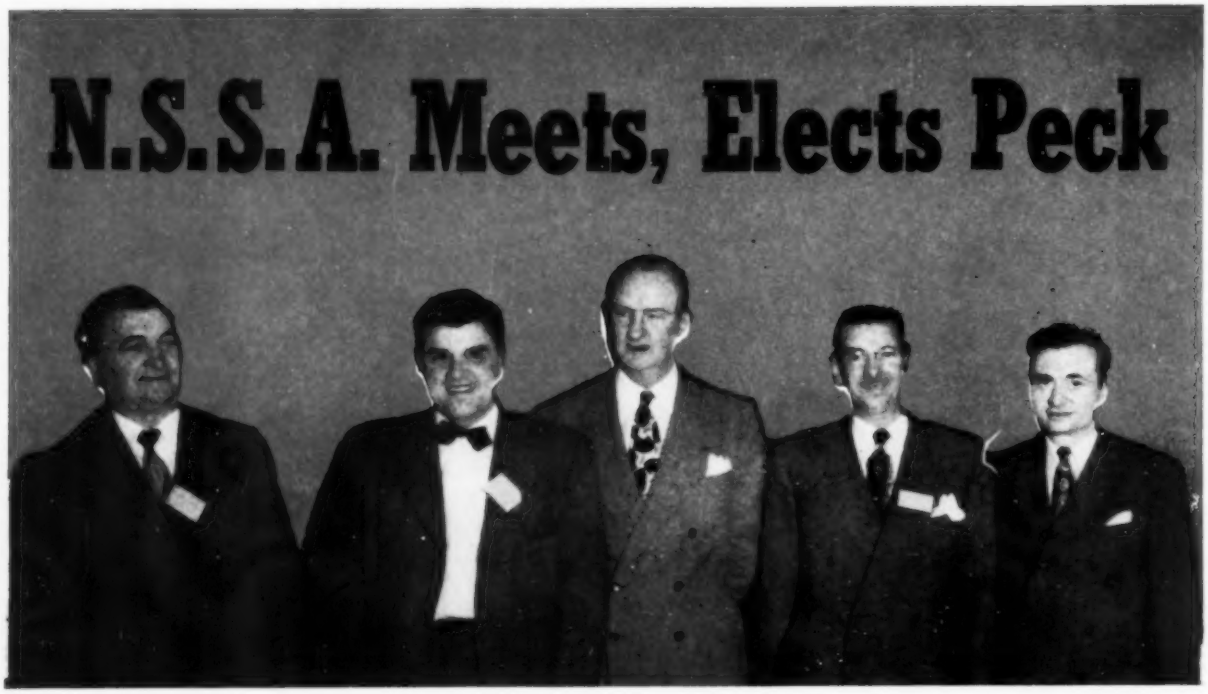
Pirating of formulas of well-known products is neither new nor unusual. As soon as any product is successful, its owner might as well make up his mind that it will soon be imitated. Such imitation, while flattering has always been annoying, and sometimes very serious from the competitive angle. In the soap, cleaner, polish, and other chemical specialty fields, the practice has probably been more common than elsewhere. On the whole, established manufacturers have taken it in stride.

But when a formula mill goes into this thing on a wholesale scale, the stamp of the chiseler appears in bolder relief. In our blunt opinion, nobody but a first-class sap would hope to imitate any product successfully solely by having its chemical analysis or manufacturing formula. Without the practical know-how, a printed formula is about as much real use as a road-map to a person who cannot read.

OVER eight million rats in New York City! We do not know who counted them but this statement formed part of an effective campaign of publicity which has been underway in all parts of the country to stimulate rodent control, — and the use of materials and services directed to this end. Kill them with antu and red squill, the news stories went on, and leave the more dangerous materials for use by the professional operator. Kill them and avoid the destruction and contamination of today's high cost foodstuffs. All told, the campaign headed by the Fish and Wildlife Service in cooperation with many local authorities has started something which we would like to see kept up. It gains momentum as it goes and cannot help but stimulate business.

For household insecticides, we would like to see something started right now along the same line, — "kill the insects today before real hot summer weather arrives, — kill them off before infestations become serious,—two roaches today, maybe a hundred by August, etc." Short items or letters to household editors of local newspapers, brief articles to all the papers in your state or other territory in which you sell, posters for retail stores,— these and a dozen other means to encourage early use of insecticides can certainly do no harm, and they could give retail sales a needed kick. Such activities have helped sales in the past and they could do it again. But it means acting now, not next week or next month.

N.S.S.A. Meets, Elects Peck



Officers chosen to serve the National Sanitary Supply Association in 1948-49 include, left to right: Martin J. Peters, Moore Brothers Co., New York, secretary; Leo G. Peck, Peck's Products Co., St. Louis, president; Carl B. Lien, Lien Chemical Co., Chicago, vice-president, and Donald F. Peatee, Mellocraft Co., Toledo, treasurer.

ADOPTION of a code of ethics; election of Leo Peck of Peck's Products Co., St. Louis, as president and a discussion of what lies ahead for the sanitary supply industry were the highlights of the 25th annual convention and merchandise exhibit—the largest, from the standpoint of exhibitors and best attended meeting ever held—of the National Sanitary Supply Association at the Morrison Hotel, Chicago, April 18-21. According to executive vice-president Leo J. Kelly, total attendance was 3,200 and there were 115 exhibitors.

In addition to Leo Peck, the new president, the following officers were chosen at the Tuesday afternoon session: vice-president, Carl B. Lien, Lien Chemical Co., Chicago; treasurer, Donald F. Peatee, Mellocraft Co., Toledo, and secretary, Martin J. Peters, Moore Brothers Co., New York. Four regional vice-presidents, including two who were reelected, were named at the meeting. They were Jack Gantz, Empire Brush Works, Port Chester, N. Y., renamed for the east; Augustus Mierson, Mierson Products Co., San Francisco, elected to serve as western vice-president; Charles S. Buschart, U-San-O Corp., St. Louis, newly elected central regional vice-president and Erwin Zaban, Zep Manufacturing Co., Atlanta, who continues as southern regional vice-president. The board of directors is now composed of retiring president, Jules Lovinger, Lovinger Disinfectant Co., Salt Lake City, U.; E. H. Paull, United Janitor Supply Co., Seattle, Wash.; Henry M. Hunter, Paint Warehouse & Chemical Co., San Antonio, Tex.; Henry B. Quick, Multi-Clean Products, Inc., St. Paul, Minn., and Robert L. Cooley, White Mop Wringer Co., Fultonville, N.Y.

Two afternoons—Monday and Tuesday—of the four day meeting were given over to general discussion sessions. Exhibits, open all day Sunday and Monday morning, were closed for the two afternoon general sessions as well as the evening of the banquet on Wednesday, the final day.

Jules Lovinger, president, opened the Monday afternoon meeting with his address of welcome.

Mr. Lovinger stressed the importance of paying close attention to changing economic conditions.

Surveying current factors which may have great potential affect on management's planning for the future, Mr. Lovinger dealt closely with the influence of the European Recovery Program and national rearmament on business. Will they hold prices at present levels, or will they continue to boost the inflationary spiral?, he asked.

No one can guess the future 100 percent right, but Washington should be watched closely for any action on rationing and price control. In any emergency an awareness of what is going on and alert, prompt and careful planning to shape the course to be taken in one's own business will help, he said.

Referring to the tax problem he declared that a cut in income taxes would aid in the retention of profits in the business and this would be a great incentive to go ahead after bigger profits.

One bright spot in the picture of what's ahead, he said, is the myriads of large buildings now being erected. For their proper sanitary maintenance a large volume of sanitary supplies will be required and "should serve to keep our industry in a top spot well

into the future," Mr. Lovinger stated.

The opportunity for lush profits no longer exists, he admitted, but progress can be made if manufacturers will produce quality goods at the lowest prices and distributors will buy them on the same basis. Summarizing activities of NSSA during the past year, Mr. Lovinger said membership is approaching the 1,000 mark, while the organization's financial position puts it near the top among national trade associations.

The institutional advertising program, emphasizing the "Buy With Confidence" theme, has been highly successful, he declared and is working out to the benefit, not merely of association members, but to all in the industry.

There was a time, said Mr. Lovinger, when business men considered a trade association as an inessential luxury. That attitude has, however, changed and more and more people realize that an active trade association with a management alert to its members' interests, is vitally necessary to their individual success.

One of the greatest benefits to members of NSSA, he declared, is the immense merchandise fair assembled at each annual meeting for their convenience and profit. Other advantages, he said, include the regional meetings for exchange of experiences and practical discussion of mutual problems. He cited, also, the bulletins from national headquarters, the institutional advertising and the janitor award contest now being tested in Chicago. Probably it will be tried in other communities. Pending developments, he said, include a trade ethics program and other plans which will bring additional benefits to members of the association.

"As our program expands," he

Top row, left to right: H. W. Hamilton, H. W. Hamilton Co., New York; Gordon Baird and Miss Anne M. Minns, Baird & McGuire, Inc., Holbrook, Mass.; R. W. Boedecker, R. C. Trowbridge, H. F. Porter and J. O'Brien, Colgate-Palmolive-Peet Co., Jersey City, N. J.; Bottom row, rear, Tom Opie, Opie Brush Co., Kansas City, Mo.; Joseph Fuld, Fuld Brothers, Inc., Baltimore; Ben M. Slicting, Benlo Chemicals, Milwaukee; Alfred Richter, St. Louis Janitor Supply Co., St. Louis; Charles Farmer, Kleenaire-Kemikils, Inc., Detroit; front row, Jay Zucker, State Chemical Mfg. Co., Cleveland; S. J. Bockstanz, Bockstanz Bros. Co., Detroit; Ludwig Wilson, Ludwig Wilson Co., Chicago; Fred Palmer, formerly Palmer Fixture Co., Waukesha, Wis. and Tom O'Keefe, Soap & Supply Co., Madison, Wisconsin; J. H. Bass of the Chicago office of the Federal Trade Commission and James Varley of James Varley & Sons, Inc., St. Louis.

continued, "I am confident that more and more business men throughout our industry will realize that the National Sanitary Supply Association is a 'must.' We can, however, only expect to get ahead as we are able to work together. We can only get out of our Association in proportion to what we put into it. To insure our future success, all that is necessary is reasonable cooperation of each with all."

Mr. Lovinger then introduced N.S.S.A. executive vice-president, Leo J. Kelly, who thanked members and manufacturers for their displays. He also thanked the trade magazines represented for their coverage.

Following his talk, Mr. Kelly commented on slide pictures showing "old-timers" in the industry and scenes of plants and other industry meetings. Shown were: Al Richter, St. Louis Janitor Supply Co.; Tom Opie of Opie Brush Co., Kansas City; Ludwig Wilson, Ludwig Wilson Co., Chicago; S. J. Bockstanz, Bockstanz Brothers Co., Detroit; Jay Zucker, State Chemical Mfg. Co.; L. W. Van Ness, National Laboratories, Toledo; Louis Herzog, Rutherford Brothers, Chicago; Ellis Davidson, Ellis Davidson Co., New York; Simon Selig, Selig Co., Atlanta; Wallace Gast, P. B. Gast, Grand Rapids, Mich.; Marshall Magee, T. F. Washburn Co., Chicago; Jack Varley, James Varley & Sons Co., St. Louis; the 10th annual banquet of the N.S.S.A. in St. Louis; the 13th annual banquet in Chicago; the 18th annual convention in Chicago in 1941; the first modern janitor supply store in Fort Wayne, Ind.; the shipping room of Bockstanz Bros. Co., Detroit, 20 years ago and the company's present store room; the first and second regional meetings at Atlanta; the two regional meetings on the West Coast; the first and second regional

Top row, left to right: Retiring N.S.S.A. president Jules Lovinger, Lovinger Disinfectant Co., Salt Lake City, U.; Sidney J. Bockstanz, Bockstanz Brothers Co., Detroit; Leo J. Kelly, N.S.S.A. executive vice-president and G. Van Etten, Clorton Chemical Co., Benld, Ill.; George H. Rubert and Carl E. Schaad, Chemical Manufacturing & Distributing Co., Easton, Pa. and Martin J. Peters, Moore Brothers Co., New York; bottom row: H. B. Siegel and Albert S. Selig, Selig Co., Atlanta, Ga.; J. M. Lieberthal, formerly of Kamen Soap Products Co., New York; Walter Straube, John Powell & Co., New York; Jules Lovinger, past N.S.S.A. president congratulating his successor, Leo G. Peck of Peck's Products Co., St. Louis.

meetings in New York; the 1947 meeting in Detroit; the 23 magazines covering the fields and information on a course in sales training the N.S.S.A. will begin shortly for its members.

Following Mr. Kelly's talk and presentation, Mr. Lovinger, who presided at the Monday and Tuesday sessions, introduced a number of the other officers and directors who spoke briefly.

Two motions were then asked for by Mr. Lovinger to empower the board of directors to change the date of the annual meeting in 1949 and to increase the number of regional vice-presidents from four to five. Motions were made, seconded and passed.

The nominating committee was then appointed. It was composed of: Jack Varley, James Varley & Sons Co., St. Louis, chairman; Al Candy, Candy & Co., Chicago; Sidney J. Bockstanz, Bockstanz Brothers Co., Detroit; M. H. McRae, Multi-Clean Products, Inc., St. Paul; Lee Hockwald, Hockwald Chemical Co., San Francisco, and Marvin Anderson, Louisiana Paper Co., Shreveport, La.

Jack Lacy of Lacy Institute of Sales Training, Boston, concluded the first afternoon's general session with a talk entitled: "How to Train Salesmen to Sell More."

The second general session, which was held on Tuesday afternoon, opened with a report of the nominating committee and the election of officers for 1948-49.

Miss Alta LaBelle, administrative housekeeper of Michael Reese Hospital, Chicago, the first speaker of the afternoon, prefaced her talk: "How to Sell Sanitary Supplies to Hospitals," by citing a few unfortunate experiences she had had in the purchase of sanitary supplies as illustrations of how not to sell. Miss LaBelle's talk is reported more fully beginning on another page of this issue of *Soap & Sanitary Chemicals*.

The purpose and functions of the Federal Trade Commission and the legislation relating to it were briefly outlined by J. H. Bass, F.T.C. representative in Chicago. He explained that the Federal Trade Commission is composed of five members who are appointed by the President. "Unfair trade practices" were not defined by Congress in the original Federal Trade Commission Act passed in 1914. What the term implies is up to the F.T.C. and the Courts to decide, Mr. Bass stated. Other laws bearing on the activities of the F.T.C. include the Robinson-Patman Act, which amended the first legislation on fair trade practices, and the Wheeler-Lea Act, which was passed in 1938, relating to wool labeling.

Officers (seated) and some of the new and old regional vice-presidents and members of the board of the N.S.S.A. at the luncheon meeting during the recent convention April 21.

There are three ways of enforcing the law on fair trade practices by compusion, consent and cooperation. In the first method the full force of the law and courts is brought into play. This method is costly and time-consuming. The second method requires the F.T.C. to cite a product for what is considered "unfair trade practice." Rather than resort to the courts, the manufacturer may sign a consent decree, agreeing to the F.T.C. stipulation and discontinuing what the Commission considers unfair trade practice. In the final method, the industry itself draws up a set of rules for guidance and regulation in conjunction with the F.T.C. The Commission prefers this method, according to the speaker, since abuses can be eliminated on a wholesale basis, saving time and money.

The question of adopting a code of ethics or Trade Practice Rules, which had been previously circulated through the industry by the National Sanitary Supply Association came up for discussion next. The proposed N.S.S.A. code was read by Mr. Kelly, who explained that the prospective set of trade rules were to apply only to the janitor supply distributing trade. Following a move which was passed, to have the code adopted by both manufacturers and distributors, considerable discussion took place regarding the advisability of conducting a ballot by mail. The move to vote by mail on the code was tabled and another move to appoint a committee of three manufacturers and three distributors to study the code and report on it in 1949 was withdrawn. Thereupon, the move to adopt the code with a section on Saturday closings eliminated was voted on and passed. Further study of the code by a committee was also agreed to.

A scheduled discussion of the adoption of proposed minimum standards for the industry was eliminated following an earlier meeting of the board at which no clear cut decision was reached on the advisability of such standards. The question was referred to a committee for further study.

The final feature of the afternoon was a question and answer panel discussion. The panel was made up of S. J. Bockstanz, Bockstanz Brothers Co., Detroit; Thomas Opie, Opie Brush Co., Kansas City, Mo.; Al Richter, St. Louis Janitor Supply Co., St. Louis, and Ludwig Wilson, Ludwig Wilson Co., Chicago.

Leo Peck of Peck's Products Co., St. Louis, was moderator.

In response to the first question on how to retain salesmen, the following answers were given: Pay fair wages, have premiums, prizes, etc.:

(Turn to Page 157

RHOTHANE for Cattle Sprays

Effective as DDT . . . 5 to 10 times safer!

Here's greater safety for your cattle sprays—*without* loss of killing power. RHOTHANE (DDD) is like DDT in the way it kills flies, lice, and other parasites of live stock. Yet it is only 1/5-1/10 as toxic to warm-blooded animals.

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Germicides • Chemicals for the Leather, Textile, Ceramic, Rubber, Paper, Petroleum and other Industries

Germicidal Aerosols

Discussion of investigations in development of a liquefied gas germicidal aerosol formula

John D. Fulton, Mary Ellen Nichols, Joan Woehler and C. L. Shrewsbury of Midwest Research Institute and Lyle D. Goodhue* and Paul Wilkins of Airosol, Inc.

CERTAIN insecticides applied in aerosol form have been demonstrated (1) to be very effective, especially where flying insects are encountered. (2) It appears obvious that any method of application which spreads the active ingredient rapidly and thoroughly will improve the effectiveness of any insecticide, fungicide or bactericide. The aerosol principle of application carries the active ingredients to every section of a room more readily than is possible with most other types of spray application. In view of these observations an investigation to develop a bactericidal formula that could be applied effectively by the liquefied-gas aerosol method was initiated. The development of such an aerosol posed many diverse problems in formulation and evaluation.

A good germicidal aerosol should work against organisms residing on surfaces as well as air-borne organisms. It has been well established that certain glycol vapors (3-11) are powerful germicides in air but they exhibit little or no germicidal action on surfaces or in solution. It was, therefore, necessary to use another ingredient to provide the desired effect on surfaces. Many germicides were considered but the most suitable ones for the purpose were among the quaternary ammonium compounds. (12-15)

The higher glycols used for air sterilization are well adapted to the aerosol process and are not diffcult to formulate. Easily soluble in dichlorodifluoromethane (Freon-12) with a small amount of isopropyl alcohol as a cosolvent, they are non-irritating and nearly odorless. Their toxicity to man and animals is very low, yet their vapors are powerful germicides in the air.

A good germicide for surfaces that can be formulated in "Freon -12" was difficult to find. In the search for such a material, a large number of compounds was tested but all except two were discarded. Few good germicides have all the desired chemical and physical properties. Most of those tested are shown in Table I.

Germicides from the quaternary ammonium class appear to be the best known chemicals for use in aerosols, but there is considerable variation in the properties of the compounds in this class. Hoogerheidt (16) found the cetyl radical to give the maximum germicidal action in the homologous series and cetyltrimethylammonium bromide and cetyldimethylammonium bromide appear to be the most suitable. They caused some irritation of the nose and throat but lower concentrations of these are necessary to give the desired action. Commercial cetyltrimethylammonium bromide from different sources varies in solubility which indicates some variation in the compound. Cetyldimethylethylammonium bromide is more easily soluble in the aerosol mixture and for this reason is preferred although it has a slightly lower phenol coefficient. The phenol coefficient of both is over 300, which is near the maximum for this class of compounds.

In order to determine the solubility of the different compounds under test, the pressure test tube described by Goodhue and Ballinger (17) was used. The formulas are made by weighing the solids, and the solvents that are liquid at room temperature directly into the glass test tube. The tube is then put into the frame and the liquefied gas is added. The solubility of a product can be determined by trial with varying percentages of material.

The pressure tube employed was the same as that used to determine the corrosion of iron and copper such as occurs in the aerosol bomb. The formulas were made up with strips of metal in the tubes and held at 50°C. By observation, any change on the metal strip, decomposition, or color formation in the solution can be determined easily. Further accelerated aging tests were also made by holding the one pound finished aerosol bomb at 50°-60°C. After two weeks, the solution was removed from the bomb and observed for decomposition. The bomb was cut open to determine the effect on the iron wall and the copper plated dip-tube. The two preferred compounds are very stable and cause little or no corrosion.

* Now associated with Phillips Petroleum Co., Bartlesville, Okla.

The odor and irritation tests were made by breathing an aerosol made from 10 g. of solution sprayed into a 1500 cubic foot room. There is a personal factor in this test because of the variable sensitivity of different individuals but it serves to eliminate the most undesirable compounds.

Germicidal Effectiveness

A LARGE number of preliminary tests on the germicidal effectiveness of certain aerosol formulations was made simultaneously with the above work. The two formulas chosen for more extensive testing were:

No. 56

	Percent
Dipropylene glycol	5
Isopropyl alcohol	5
Dichlorodifluoromethane	90
	100

No. 59

	Percent
Dipropylene glycol	5
Cetyltrimethylammonium bromide	1
Isopropyl alcohol	9
Mineral Oil	5
Dichlorodifluoromethane	80
	100

The organisms that were used in this work were *Escherichia coli* and *Staphylococcus aureus*.

The tests were conducted in a chamber (Fig. 1) approximately 5 x 5 x 6 feet with a total volume of 150 cubic feet. The chamber was constructed of glazed tile and equipped with an overhead water spray, an exhaust flume, and an ultraviolet lamp to facilitate cleaning and sterilization. The chamber contained a small shelf 10″ x 18″, three feet from the floor projecting from the center of the south wall. This shelf was equipped with a sliding tray which was operated through a small sliding door from outside the chamber. The petri plates were moved in and out of the chamber on this tray. Preliminary work indicated the need for maintaining constant air currents in the chamber to aid in dispersing and preventing rapid settling of the test organisms. An eight inch electric fan was installed and qualitative experiments were carried out to determine the proper position and speed. The best conditions were obtained when the fan was directed vertically from the center of the chamber floor and run at 1700 R.P.M.

TABLE I. List of Some Germicides Tested and the Most Objectionable Properties of Each.

Germicide	Objectionable Properties
Salicylanilid	Poor germicide
2,2′-Dihydroxy-5,5′-dichlorodiphenyl methane	Very irritating in air
8-Hydroxyquinoline	Developed color Undesirable odor
Oil-soluble Hyamine (quaternary ammonium compound)	Forms colored solution Irritating
Sodium N-chlorobenzene sulfonamide	Insoluble in liquefied gas mixture
Alkyldimethylbenzylammonium chloride	Very irritating in air
Phenylmercurictriethanolammonium lactate	Corrosive to skin
p-Tertiaryoctylphenoxyethoxyethyl methylbenzylammonium chloride monohydrate	Insoluble
Pyridylmercuric stearate	Insoluble
Tetramethylthiuramdisulfide	Insoluble
Hexylresorcinol	Irritating. Corrodes iron
p-Hydroxybiphenyl	Irritating. Corrodes iron
Resorcinol	Insoluble
Sulfapyridine	Insoluble
Octadecyldimethylbenzylammonium chloride	Very irritating in air
Di-isobutylcresoxyethyoxyethyldimethyl-benzylammonium chloride	Insoluble
Phenylmercuric salicylate	Insoluble
Thymol	Irritating. Strong Odor
8-Hydroxyquinoline salicylate	Poor germicide
B-Naphthol	Insoluble
Phenol	Insoluble
B-Naphthol benzoate	Insoluble
Cresol	Strong odor
Cetyldimethylethylammonium bromide	Mildly irritating
Cetyltrimethylammonium bromide	Mildly irritating
N (higher acyl esters of colamino formylmethyl) Pyridinium chloride (Emulsept)	Forms colored compounds

The spray nozzle used for atomizing the inoculum was located in the center of the west wall. The atomizer consisted of a pneumatic unit equipped with a one mm. nozzle and was operated at 10 pounds pressure. In all the experiments the relative humidity was kept between 40-47 percent and the temperature was maintained at 84-88° F.

The organism used to inoculate the chamber was carried in nutrient broth and 10 ml. of a 20 to 24-hour culture was used for inoculum. Attempts were made to inoculate the chamber with a constant number of bacteria in each run using a counting technique, but little success was attained. Best results were obtained by using a turbidimetric determination of the number. Twenty to 24-hour cultures were diluted to a given reading against a standard tube of broth on the Evelyn colorimeter and then rediluted to give a final volume containing the desired number of organisms.

Upon completion of a test the chamber was exhausted, washed and the ultraviolet lamp was turned on to sterilize it. The chamber was again exhausted for a few minutes to remove any possible accumulation of ozone. A plate of nutrient agar was exposed for two minutes to determine sterility.

During the test, nutrient agar plates were exposed on the chamber shelf to collect the air-borne organisms. As soon as the inoculum had been sprayed into the test chamber the initial plate was exposed for a period of two minutes. After two minutes the plate was removed and a second plate was exposed for a similar period. The plate exposure process was continued until nine plates had been exposed consecutively. In addition, a plate was left open on the same shelf during the entire run which required a total of 18 minutes. The plates were incubated

for 24 hours at 30° C. and counted. An improved Spencer Quebec colony counter was used.

The number of bacteria in the air being reduced by collecting on surfaces, it was necessary to first determine the normal rate of loss of the test organisms. This was accomplished by spraying a suspension of the bacteria into the chamber without introducing any germicide and allowing them to settle on a series of plates when exposed as indicated above. The procedure served as a blank determination. After 24 hours of incubation at 30° C. the colonies on the plates were counted and the settling rates determined. The number of bacteria collected on the plate exposed for the first 2-minute interval was considered as the initial concentration. The number on succeeding plates was expressed as the percentage of this figure. For example, if 1000 colonies appeared on the initial plate in the series and 800 colonies were counted on the second plate in the series, the amount still in suspension at that particular time would be 80 percent. Considerably more variation was found in the settling rate of *E. coli* than of *S. aureus*.

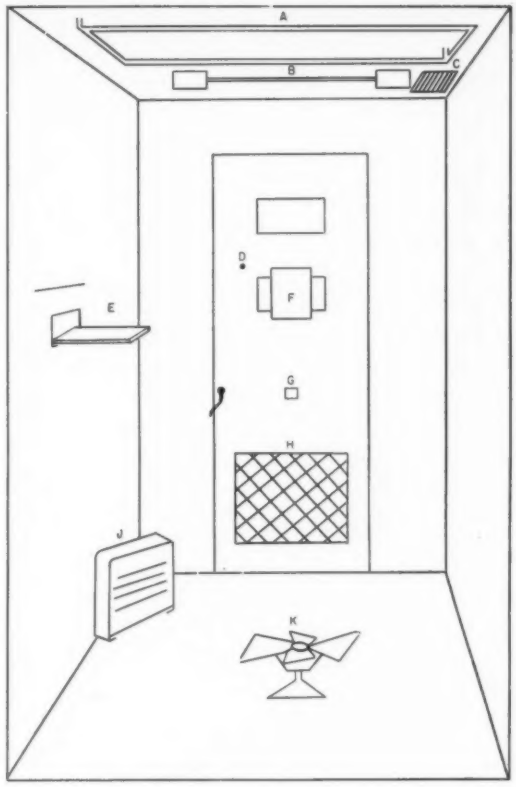


Figure 1. Test Chamber

- **A. Water Spray**
- **B. Sterile Lamp**
- **C. Exhaust Vent**
- **D. Aerosol Aperture**
- **E. Exposure Shelf**
- **F. Hygrometer**
- **G. Inoculation Aperture**
- **H. Air Filter**
- **J. Heater**
- **K. Fan**

When the loss from settling was determined the actual testing of the germicide was begun. A suspension of the test organisms was sprayed into the chamber and upon completion of the inoculation, the 0 to two minute plate was placed on the shelf. At the end of this period the aerosol was sprayed into the chamber directly across the revolving fan. During this time the two to four minute plate was being exposed. The bomb was weighed before and after the spraying to determine the amount introduced into the chamber. In all the tests the amount of aerosol (total solution) sprayed into the chamber was held between two and 2.5 mg. per liter of chamber air. The remaining plates in the series were then exposed at the proper time intervals.

Experimental Results

THE results of the tests are shown in Table II and Figure 2. All figures are an average of either seven or eight tests. In nearly every case the number in the individual tests did not vary more than plus or minus 25 percent from the average.

The first section of the table contains the blank determination which

(*Turn to Page* 157)

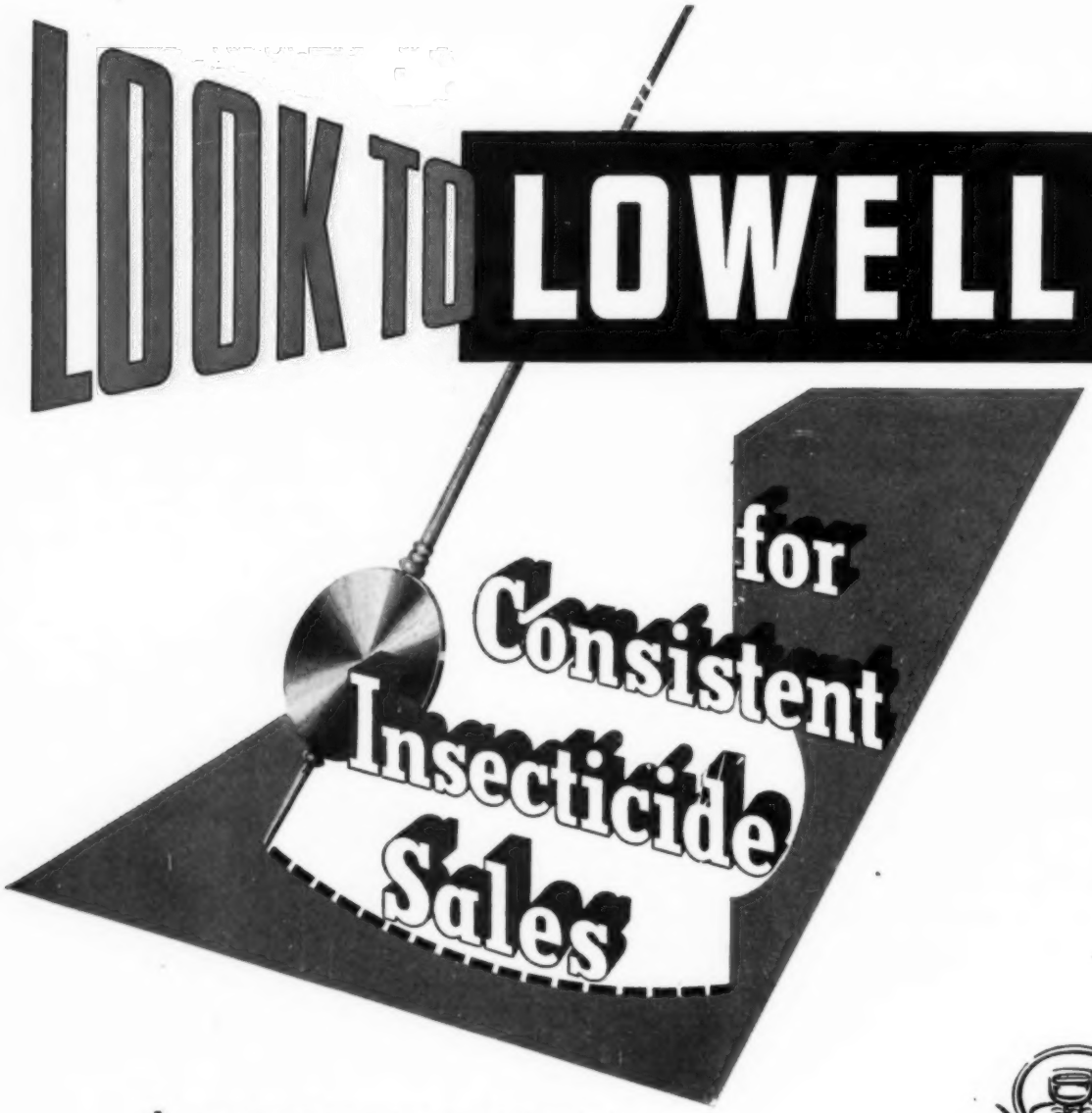
TABLE II

The effect of germicidal aerosols of Dipropylene Glycol, No. 56, and Dipropylene Glycol with Cetyl-Trimethylammonium Bromide (Cetab), No. 59, on air-borne suspensions of E. coli and S. aureus. The number of colonies is the average of 7 or 8 tests. The count for the first 2 minute intervals is taken as 100 percent.

Exposure Interval in Minutes	Blank Determination E. coli Av. No. Colonies	Blank Determination E. coli Percent Remaining	Blank Determination S. aureus Av. No. Colonies	Blank Determination S. aureus Percent Remaining	Dipropylene Glycol Aerosol (56) E. coli Av. No. Colonies	Dipropylene Glycol Aerosol (56) E. coli Percent Remaining	Dipropylene Glycol Aerosol (56) S. aureus Av. No. Colonies	Dipropylene Glycol Aerosol (56) S. aureus Percent Remaining	Dipropylene Glycol-Cetab Aerosol (59) E. coli Av. No. Colonies	Dipropylene Glycol-Cetab Aerosol (59) E. coli Percent Remaining	Dipropylene Glycol-Cetab Aerosol (59) S. aureus Av. No. Colonies	Dipropylene Glycol-Cetab Aerosol (59) S. aureus Percent Remaining
	4,292	100.	4,929	100.	5,839	100.	4,919	100.	5,062	100.	3,793	100.
2-4	2,767	64.5	3,385	68.8	1,490	25.5	1,560	31.7	47	1.0	50	1.3
4-6	1,923	44.8	2,608	53.1	1	.02	1	.02	6	.12	2	.05
6-8	1,268	29.6	1,946	30.6	1	.02	1	.02	7	.14	4	.10
8-10	1,001	23.4	1,483	30.2	1	.02	1	.02	8	.16	4	.10
10-12	774	18.2	1,135	23.1	0	0.0	1	.02	5	.10	3	.08
12-14	538	12.6	907	18.2	0.1	.002	1	.02	6	.12	2	.05
14-16	436	10.1	651	13.3	0	0.0	0.5	.01	8	.16	2	.05
16-18	340	7.9	507	10.2	0.5	0.01	0.2	.004	2	.04	3	.08
Total	13,339		17,551		7,333		6,485		5,151		3,863	
0-18*	12,072		15,570		7,047		6,117		85		14	

* This plate was exposed through the entire test to show the effect of the germicides on bacteria already collected on the plate before introducing the aerosol.

LOOK TO LOWELL



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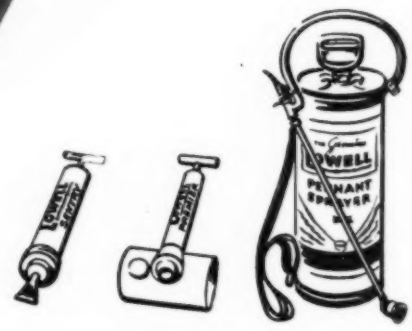

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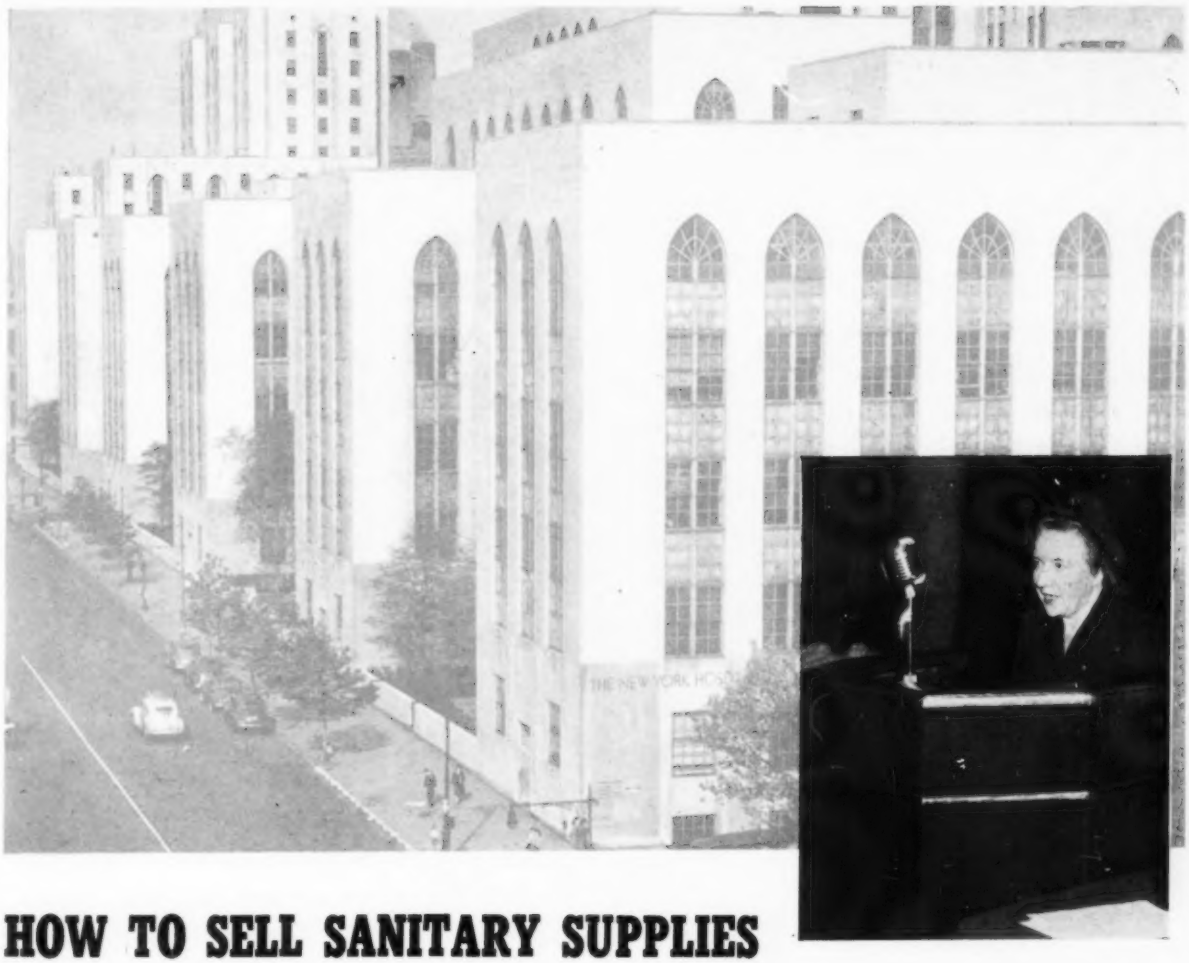


HOW TO SELL SANITARY SUPPLIES TO HOSPITALS . . .

By Miss Alta LaBelle,*
Administrative Housekeeper,
Michael Reese Hospital, Chicago

IN general, there are four good reasons why the hospital world is somewhat different to approach in selling sanitary supplies than other industries.

First, hospitals are ultra-conservative in their habits. Once, through its research channels, it has set up a sanitary supply product as the one it wishes to accept as standard, it does not wish to make a change again until science or economics proclaims that there is something better.

Second, the hospital has a more stable type of personnel than other fields. It is not unusual for hospital employees to remain in hospital jobs for the greater part of their lives. When these employees have learned to work easily with a certain sanitary product, they do not wish to unlearn how to use this product, and learn to use another. You would find it hard to believe if you could hear some of them protest against the use of a new product.

Third, and very important, we resort to our easily available laboratories to assist us in making up our minds about the value of sanitary supply products. We do not like to bother the laboratories with continuous requests for help, unless we feel that it is necessary.

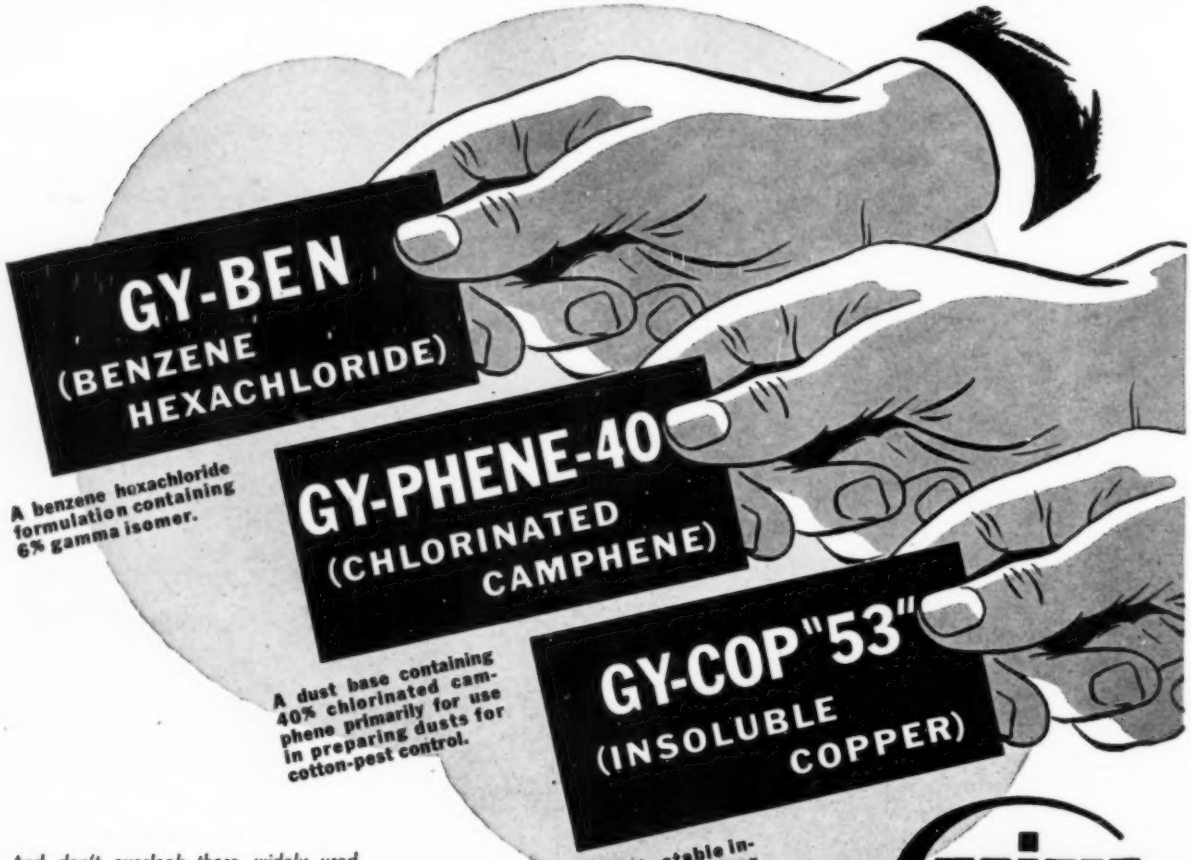
Fourth, and mighty important, is the "not for profit," enforced frugality of nearly all hospitals. The difference of cost between the dollar a gallon product versus the dollar ninety-five a gallon product often seems monumental, especially in the light of the easy access we have to knowledge of cost and quality of the basic materials which compose many of your products.

Honesty and truth are musts when you are trying to sell intelligent people. Don't forget for a moment that the kind of people who are in management in hospitals are amongst the best trained minds that you will find in any type of work. They are people who work for the gratification of doing for humanity, and not for large remuneration. They are very sensitive to the misrepresentative huckstering type of salesman.

Another bad and bold type of huckstering is the use of the oft repeated misstatement of fact, which

* Before the 25th annual meeting of the National Sanitary Supply Association, Hotel Morrison, Chicago, April 20.

GEIGY NOW ADDS 3 NEW PESTICIDES TO THE LINE THAT MADE DDT FAMOUS



And don't overlook these widely used Geigy DDT compositions. They also represent opportunity to manufacturers and processors of packaged insecticides for the retail trade.

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A solution containing 30% Geigy DDT (by weight) for dilution with liquids, to control flies, mosquitoes, bedbugs, cockroaches, fleas and certain other insects.

GESAROL* VD-50

A finely-ground powder containing 50% Geigy DDT. For general agricultural use after addition of diluents to formulate DDT dusts adapted to control specific pests.

Geigy Company, *"Originators of DDT Insecticides"* are now broadening their base of operation in the field of pesticides. These three new Geigy products have been tried and proven. They are of traditional Geigy quality. Use them with confidence in dust mixtures for agriculture. They will help you build business. Your inquiries are invited.

**Reg. U.S. Pat. Off. Insecticidal Compositions containing DDT are covered by Reissue Patent No. 22,922*

GEIGY COMPANY, INC.
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ORIGINATORS OF DDT INSECTICIDES

To sell sanitary supplies to hospitals: Know who does the buying; make an appointment; know your product; be sociable, says the author -- a buyer for a large hospital.

I've heard so often: "I sell Marshall Field and Co. all of their wax." After I heard this for the "umpteenth" time I investigated. I found that Marshall Field and Co. were just as eager as I was to use only one kind of product to standardize their maintenance teaching needs. Don't ever forget that there is a fine esprit de corps between users of sanitary supplies and that we users get together and talk things over once in a while.

I shall now try to offer a few constructive comments on how to sell sanitary supplies to hospitals. My first suggestion is to find out (if possible) who originates the purchases. Quite often it is the housekeeper who does the initial research. In this event, it is to her you should go first. After she has done the necessary research and the item in question has been accepted, it is time to see the purchasing agent. Continued sales then can be made through the purchasing department as long as the hospital uses the products.

Second in importance is to call for an appointment when you wish to see the housekeeper. If you drop in when it pleases your fancy, it may not please her fancy. The housekeeper is continuously faced with too many frustrating problems to be asked always to set them aside to talk to anyone who does not have vital business. If you have followed the good form method of arranging for an appointment, the housekeeper slows down from her duties a bit, and tries to be calm, so as to be in a receptive mood when she talks to you.

Know all about what you have to sell. Be prepared to tell the potential buyer all she wants to know about your product. If she asks you what your product contains, don't freeze up and mumble something about a secret formula. There is nothing too secret about the contents of any of the sanitary products. The housekeeper has a very legitimate right to know what are the basic ingredients of your products. She is not trying to pry into your trade secrets, nor is she going to rush out and go into competitive business with you when she finds out. She only wants to be sure that she can judiciously instruct her personnel how best to use them. Blame probably should be vented not on sales representatives but on those to whom they are responsible for not preparing them better.

Do not rely on the potential buyer whom you buy a cocktail or two as a sure source of business. Any buyer, of course, is appreciative of the social amenities, and will feel more kindly toward you for having received them, but this should not indicate that they have any trade-in value. On the other hand, your acceptance of invitations to attend social functions of one of your buyer's pet associations is always a shortcut to the buyer's heart.

Now then, a word to representatives of the equipment field. Make your equipment light in weight. Give us a break in the full performance potential of our employees. With personnel our big item of expense, we must get the utmost in performance out of each and every employee. They cannot be expected to give us good production if they are all worn out from dragging around unnecessarily heavy equipment.

Glamorize your sales potential with interesting pamphlets about such items as can be made interesting. I think that nearly every item of the sanitary supply field can be made interesting. For example, in selling sponges, give a picture story of the life of the sponge and how it ultimately reaches the buyer. Or with cotton, tell how it gets to be a mop. Or bristles, explain how they get into our brushes. Too, something about the care of these items would be helpful. Keep your trade name out of the picture story. It is enough to have it on the back of the pamphlet. One hates to be continuously reminded that super-this or super-that is the only brand which can be instrumental in doing a prideful job for us.

Last, if you really want to sell hospitals foster something constructive. Cast your bread upon the waters, much as the hospital people themselves have done, and your returns will be great; and gratifying too. With sanitation playing such an important part in public health, and public health a subject which is on every tongue you will find many outlets for a constructive program which will tie in with public health. This is a natural for sanitary supply people. For sanitary supplies make the public health outlook a better one; they are the tools which make public health possible.

Experiments to determine the effectiveness against chiggers of clothing impregnated with mixtures of benzyl benzoate and dibutyl phthalate are described. Methods of impregnating and of determining the effectiveness of the treated garments are detailed. Dibutyl phthalate was found to be only slightly less effective against chiggers than benzyl benzoate. A 50:50 mixture of the two withstood the same number of washings as benzyl benzoate alone, and one more wash than dibutyl phthalate alone. Cotton uniforms retained the 50:50 mixture a little better than wool uniforms after washing. The mixture in cotton clothing withstood aging outdoors 12 or more days longer than benzyl benzoate alone. In wool the mixture gave protection for 58 days outdoors. F. M. Snyder and F. A. Morton, *J. Econ. Entomol.* 40, 586-7 (1947).

Testing Insecticide Sprays

By C. C. Roan and C. W. Kearns*
University of Illinois

A Consideration of the Factors Involved in the Design and Use of Insecticide Test Apparatus

THE extensive use of synthetic organic compounds as insecticides, while solving many problems of the economic entomologist, has presented many new problems. One of these is the matter of biological evaluation of the effectiveness of such compounds. Difficulties are introducted through the fact that many of the compounds possess great stability, have fumigating potentialities, and produce a high mortality at relatively low concentrations.

Hurst in 1943, listed four factors entering into the problem of testing flying insects in a closed chamber. He discussed the possibilities of interference due to the carrier activity, the possibility of fumigating action of the toxicant, the size of the test chamber, the problems of contaminating residues and the size of the spray droplets. This latter factor, i.e. droplet size, and the use of an air stream to carry the droplets have been the subject of much investigation since the advent of chlorinated hydrocarbon insecticides. LaMer et al., in 1945, stated that so long as $R^2V=1000$, the particle size will not materially affect mortality. (R=radius in microns, V =the velocity in miles per hour.)

If the foregoing conclusions are true, it becomes apparent that in order to evaluate the effectiveness of contact insecticidal sprays the following factors must be carefully considered in the design of test apparatus.

1. The possibility of exposure of the test insects to a contaminated surface.
2. The possibility of fumigating action,
3. The necessity for constant uniform exposure of the test insects to the spray.
4. The possibility of mortality due to the solvent.
5. The possibility of laboratory contamination.

In order to conform to the above requirements, any equipment designed to evaluate contact insecticidal sprays must embody the following general features:

1. The use of test cages that may readily be decontaminated;
2. The use of recovery cages that will not in themselves cause a mortality;
3. The over-all design of the test equipment must insure a uniform distribution of the droplets throughout the area of the test cage;
4. The test equipment must be designed so that the volume of solvent used will be well below the maximum tolerance of the test insect to the specific solvent;
5. The test equipment must provide a method for exhausting the spray from the laboratory.

The equipment described in this paper was designed for use with the adult of the common house fly, *Musca domestica*, Linn.

Design of Test Apparatus

A SMALL wind tunnel is modified to accommodate a cage of test insects and the spray is passed through the cage at a controlled velocity. An electrically driven blower pulls the air stream carrying the atomized spray droplets through the chamber and exhausts the spray from the building. The test cage is placed in the apparatus in such a manner that the test cage forms a section of the wind tunnel through which the spray flows. The time of exposure is governed by the velocity of the air stream and the air pressure used to operate the atomizer. The droplet size is determined by the design of the atomizer and the air pressure used to operate it. According to Potter, in 1941, a more uniform distribution of spray droplets is obtained by introducing turbulence between the actual test cage and the atomizer. The velocity of the air stream through the test cage is determined by the capacity of the blower and the dimensions of the apparatus. The air speed may be reduced by means of an air flow control damper. The air speed is measuered by means of a Venturi tube and a calibrated inclined manometer.

The size of the test cage and activity of the test insects determine the uniformity and number of actual hits by the evenly distributed spray particles. The arrangement of the components of the apparatus and the important dimensions are shown by Figure 1.

The atomizer (Fig. 1, A, details Fig. II) consists of a directed air stream and a spray reservoir fastened to an adjustable mount. The mounting is constructed so that the position of the atomizer may be adjusted to project the spray into the axis of the air stream. The diameter of the orifice of the air line is two mm. and spray

* Based on a paper presented before the annual meeting of the N.A.I.D.M., December, 1947, Baltimore.

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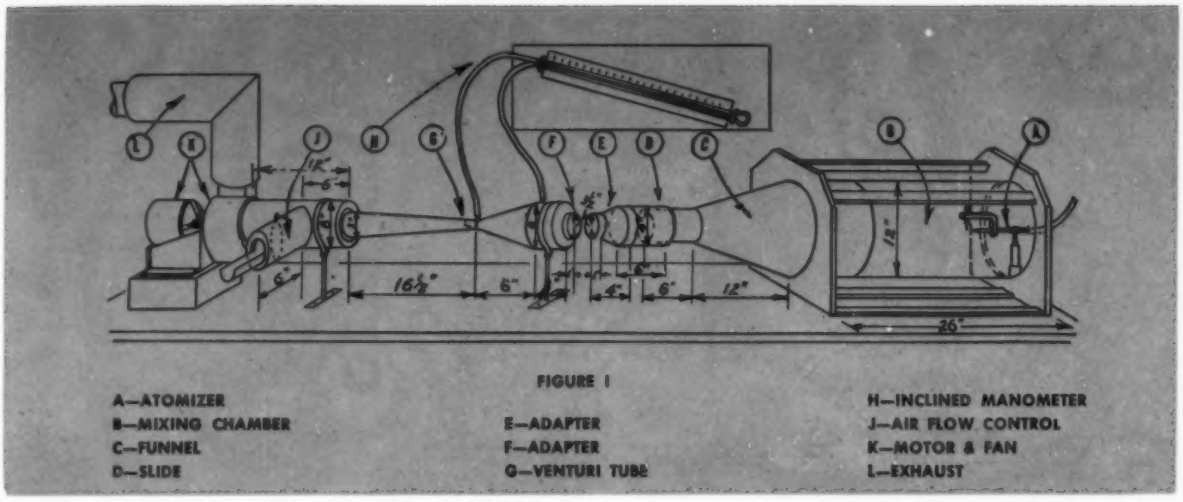


FIGURE I

A—ATOMIZER
B—MIXING CHAMBER
C—FUNNEL
D—SLIDE
E—ADAPTER
F—ADAPTER
G—VENTURI TUBE
H—INCLINED MANOMETER
J—AIR FLOW CONTROL
K—MOTOR & FAN
L—EXHAUST

reservoir consists of ¼" copper tubing with a 26 gauge hypodermic needle soldered into one end. The other end of the tube is sealed off and has a small hole cut in its side to permit charging with the spray liquid. The tip of the hypodermic needle is cut off square. The spray reservoir is mounted so that the tip of the needle is in the center of the opening of the air tube and two mm. from the end of the air tube. This arrangement gives a solid cone type of spray. The air control valve for the atomizer consists of a Type DGA, DeVilbiss air valve connected to the atomizer by a section of rubber pressure tubing. The air pressure used to operate the atomizer is regulated by a DeVilbiss Type HB—502 air transformer. The atomizer is mounted in the open end of a glass mixing chamber Fig. 1, B) through which the air stream flows. At the other end of this mixing chamber is a reducing funnel (Fig. 1, C) which introduces turbulence into the air stream resulting in a more uniform distribution of the spray droplets. A linear section with a slide (Fig. 1, H) allows rapid and easy changing of the test cages. An adapter (Fig. 1, E) carries the test cage. When the slide is moved forward, the test cage fits into another adapter (Fig. 1, F) connecting the reducing funnel to the next component.

The next component of the apparatus is a Venturi tube (Fig. 1, G) connected to an inclined manometer (Fig. 1, H) to measure and indicate the velocity of the air stream through the system. The inclined manometer has been calibrated to indicate the velocity of the air stream at the loca-

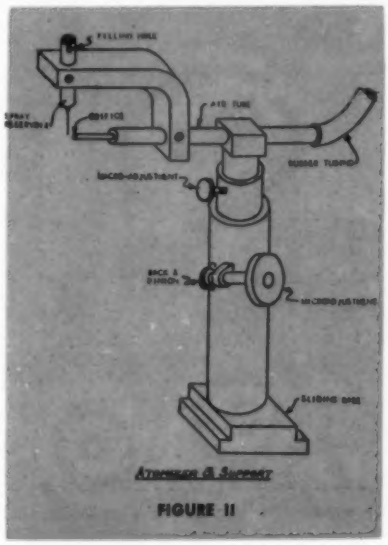


FIGURE II

tion of the test chamber by use of a Keuffel & Esser hand anemometer.

An air flow control (Fig. 1, J) allows adjustment of the air flow by opening or closing the damper which provides an additional source of air for the fan. Opening the damper reduces the velocity of air through the test chamber.

The motor and fan (Fig. 1, K) is a Buffalo blower unit rated at 1000 cu. ft. per minute. This unit pulls the air stream carrying the spray through the apparatus and exhausts it from the building by means of the exhaust pipe. (Fig. 1, L).

The test cage consists of two self-sealing Kerr wide mouth mason jar lids with the rim around the top edge cut away. The ends are made from No. 16 mesh, galvanized screen soldered into place. One half of the test cage has four small, galvanized, sheet metal lugs ¼" x ½" soldered on the inside of the rim, projecting ¼" beyond the rim so as to fit into the other half of the test cage and hold the two parts together. Test cages of this size and shape are easily decontaminated by placing them in a solution of alcoholic alkali for at least two hours. The cages are then rinsed thoroughly in water to remove all alkali and dried in an oven.

The recovery cage consists of one quart cardboard liquid containers with the cardboard ends removed. The ends from the can and cover are replaced by 16 mesh galvanized screen of the same diameter. The carton is lined with a section of Kraft wrapping paper which may be removed and discarded after use. The screen ends may be easily removed and decontaminated in the same manner as the test cages.

Spray Droplet Distribution

THE distribution of spray droplets of this apparatus was determined by use of carbon coated microscope slides three inches by one inch. The coating of carbon was applied by passing the slide over a smoking flame about 15 times to insure a relatively uniform deposit of carbon. The smoked slides were then fastened in a test cage and placed in the test apparatus. The droplet size, distribution, time for delivery of spray from

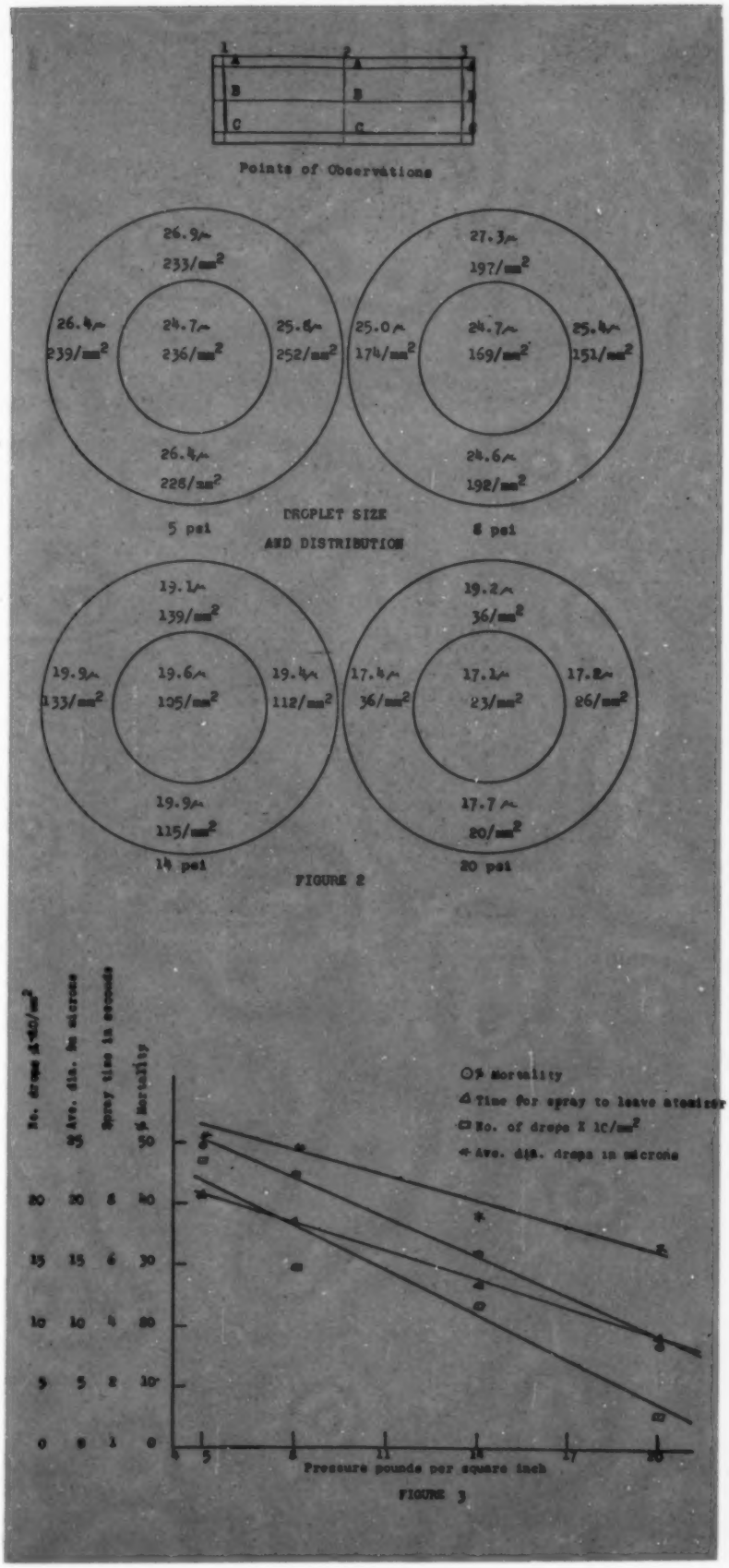
the atomizer, and mortality were checked at the following pressures: five psi, eight psi, 14 psi, and 20 psi. A volume of 0.5 cc. of deobase solution containing 0.25% (W/V) of chlordane was used in studying these factors. In order to minimize the effect of droplet size on mortality (La-Mer et al., 1945), the maximum air speed of 3.6 MPH was used.

Two slides were sprayed at each pressure setting. One was placed in a vertical position and the other in a horizontal position. The slides were examined with a microscope fitted with an ocular micrometer . The areas counted and measured are shown in Fig. 2. At each position 10 drops were measured and the average size recorded. The number of droplets in the field were counted and converted by a calibration factor to give the number of droplets per square millimeter. The average droplet size and distribution at each presssure setting is shown in Fig. 2. The numbers in the outer area represent the average of three separate observations, as outlined previously, while the numbers in the center are the average of six observations; three from the vertical slide, and three from the horizontal slide.

The effect of pressure on the operation of this apparatus is shown graphically in Figure 3. The droplet size and concentration were determined by the method previously outlined. The effect on mortality was determined by spraying four replications of approximately 100 six-day old flies under the conditions previously described.

Figure 3 shows that as the pressure increases, the values for droplet size, drop inpingement, time for spraying and mortality all decrease. The decrease in droplet size is to be expected from the known effects of increased pressures. The decrease in the number of drops per unit area may be explained by two factors. First, as the pressure increases, the size of the average diameter of the droplet decreases. As the number of droplets with diameters of less than 17 microns increases, the number of droplets impinging out on the glass slide, or on the test insects decreases, possibly be-

(*Turn to Page* 149)



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The light, well-ventilated storage room above, used by National Biscuit Company for flour storage at their new Atlanta bakery is a good illustration of keeping food off floors, away from walls.

Food Plant SANITATION

By Ferdinand A. Korff*
Director, Bureau of Food Control
Baltimore City Health Department

THREE separate activities must be engaged in during the supervision of food establishments by regulatory officials. The three kinds of activities are:

1. Preventing contamination of food that is manufactured, sold or served so that there will be no impairment of the health of the consumer.
2. Preventing adulteration of food done intentionally or unintentionally, with innocuous substances that may diminish its food, as well as its economic value.
3. Demanding that the plant, store or purveying establishment be kept clean, neat and tidy, and free from insects, rodents and filth.

As a matter of fact the three kinds of activities dovetail to attain the ultimate of permitting only pure foods to reach the consuming public. By insisting upon clean and tidy plants, the chances of impurities getting into food unintentionally are minimized and careless operations, often responsible for hazardous substances contaminating food, are reduced or eliminated.

The tasks of preventing contamination of food and requiring that food establishments be free of filth, grime, dirt, insects and rodents require education, cooperation and regulation. In spite of many years of public health activities, however, many food establishments still remain that have not improved in sanitation. Many excuses have been given by owners of plants, stores, warehouses, restaurants and soda fountains for the poor sanitation—the war, lack of material, too much business, lack of personnel, taxes.

In diagnosing the lack of cleanliness that has persisted through the years, there seem to be two basic causes:

1. Personnel. Because of lack of training there exists an almost total ignorance of ways to maintain the food establishment in a clean condition.

2. Equipment and its location within the plant. Equipment is often constructed so that it cannot be cleaned readily. The location of this equipment and appurtenances in the plant is such that the area around and under the installations cannot possibly be cleaned and maintained in a sanitary condition.

The cure for the stagnant and not-so-clean plants, following the diagnosis of the cause of the illness, is based on treatment that will not only eliminate the cause of the sickness, but will prevent it from recurring. In other words, both curative and preventive treatments must be applied.

* Presented at the 34th meeting of the National Assn. Insecticide and Disinfectant Manufacturers, Inc. Baltimore, December 1, 1947.

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It can be stated that both the cure and prevention do not depend upon chemicals alone. In fact, chemicals play only a minor part in the treatment. When chemicals are used, strict compliance with instructions should be insisted upon. The use of pictorial designs and preferably demonstrations by intelligent sales personnel to illustrate instructions would be helpful. "One picture is worth a thousand words."

Applying the Treatment

I. Personnel Training

PERSONNEL as well as management should be made to realize that first measures to be applied are the prevention of the invasion of food plants by insects and rodents, and the prevention of infection of moist foods by germs or bacteria. Each individual in the food plant must be made aware that modern laboratory methods as applied by regulatory officials do not differentiate between dead and living insects or offal and body excreta of rodents. Killing insects after they get into food plants is not a cure for an insect-infested plant. Of itself, killing rats and mice after they invade a plant is a ridiculous procedure unless other additional steps are followed to keep pests from entering. Rodent proofing, plus extermination, must be applied; both procedures are necessary. The food plant employee as well as management must be made aware that neither machines nor chemicals will perform this miracle of operating by themselves in cleaning, disinfecting, sanitizing, sterilizing or doing anything else for which the machine or chemicals have been devised. Both the machine and the chemical must be operated or applied by an individual somewhere along the line. Too often the chemical is considered as the means of working the complete miracle.

The many new chemicals for use in food plants placed on the market within the past two years have complicated the situation, for each new chemical has a specific use, and must be used for effective results, strictly according to directions supplied by the manufacturer. Many of the new chemicals actually may do more harm than good. If a chemical even in small amounts is toxic to man yet is effective as a cleanser, sanitizer, or insecticide or rodenticide, its use must not be encouraged in food plants under any circumstances. If the chemical is to be used for a specific purpose, then the problem of its use becomes more complicated unless there is continual direct demonstration given to each plant manager and subordinate employee in the food plant where it is to be used.

Personnel in the food plant, therefore must be instructed that the three causes of food contamination are: (1) bacteria (2) insects and (3) rodents. Instruction must be given to food plant personnel by one who is aware of and completely believes in the hazards and dangers that can occur if the three invaders are not kept out of the plant. This instruction must be given in such a manner that the habits and characteristics of each of the persistent invader is clearly understood. The instruction can readily be given in one hour and use should be made of diagrams and rough sketches on a blackboard. The needs of bacteria namely, food, water and warmth, must be stressed. The value of heat and chemicals nontoxic to humans as destroying agents and the use of cold (refrigeration) as a means of preventing growth of the germs must be made clear.

The knowledge of the habits of insects, their need for food, water and breeding places, if acted upon will go a long way toward preventing their reproduction in the food plant. It must be pointed out that the killing of large numbers of insects in the plant quite frequently will cause the food product to be contaminated with fragments and carcasses of the dead insects and subject the manufacturer to legal action by the regulatory official. The generous use of caulking compound and the sealing of small holes, cracks and breeding places, are effective treatments in eliminating pests.

The habits of rodents must likewise be emphasized to the food plant employee as well as the supervisory personnel and owner. The desire of rodents for carbohydrate foods; their need for harboring places in which to raise their young; their poor eyesight, keen senses of hearing and smell and their very efficient defense mechanism must be stressed frequently in instructing food plant employees.

The food plant employee and owner must be taught also that trapping and poisoning is only one part of the control procedure; that rodent excreta can be walked on and otherwise made unseen, and eventually find its way into the food product.

Equipment

THE second attack on the plant that, because of its unclean condition, may be considerd sick is through its equipment.

It must be recognized that the employee of today is not overly ambitious to do manual labor. Cleaning the plant and getting it in immaculate condition is very difficult and very laborious. The average food plant of yesterday and today has been designed by following the plan of a predecessor plant, which in turn was copied from the plan of a previous plant, and so on. The equipment has been designed by mechanical engineers who, although they have constructed efficient machines insofar as their operation is concerned, have, I believe sometimes stuck their tongues in their cheeks and said quietly to themselves, "I dare anyone to keep that monstrosity clean". Too often the equipment is installed against walls and or placed on irregular floors, providing ideal harboring places, breeding haunts and living quarters for both insects and rodents. Plumbers and electricians often connect a miscellaneous assortment of pipes, braces, conduits and belts to the equipment so that it cannot be moved. The pipes and conduits barely touch the floors and walls and provide homes, nesting places and maternity wards for any lucky insect that may find a Utopia for itself and its offspring. The various public service and utility connecting-up crews, too, will install meters, fuse boxes and other appurtenances near walls, providing additional apartment houses for the whole gamut of insects and small rodents that may enter the plant.

Often, to make the plant more houselike, a false ceiling is installed, the stairways are boxed in, miscellaneous wooden equipment is added. Then after

(*Turn to Page* 153)

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TECHNICAL Briefs

From Current Literature in the Sanitary Products Field

Insecticide Deodorization

The odor of crude benzene hexachloride is diminished by steam distillation. Into 500 grams of water at 100°C. are introduced 986 grams of a 20 per cent solution of crude benzene hexachloride in benzene. The temperature is kept constant until all benzene has evaporated. Steam is then passed through the aqueous solution for one to six hours and the purified benzene hexachloride is separated by filtration. L. J. Burrage, C. R. Beveridge, and Imperial Chem. Industries Ltd., British Patent No. 592,677.

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Mildewproof Agent

Bis (napthenyl oxymercuri) cresol applied to cotton fabric at 0.1 per cent by weight gave complete resistance to such fungi as *Chaetomium globosum*. The compound is soluble in xylene, toluene, benzene etc. Similar complex organic mercury compounds gave the same result. M. Nowals, to Nuodex Products Co. U.S. Patent No. 2,423,044.

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Residual Toxicity

Adult houseflies and mosquitoes were exposed to surfaces which held deposits of various insecticides for definite times. Mortality in 24 hours was taken as an index of residual effectiveness of the insecticides. The effectiveness in decreasing order of activity over a 26-week period was as folllows: DDT, benzene hexachloride, chlordane, "Toxaphene," 2,2-bis (parachlorophenyl)-1 1-dichloroethane. Mixtures of pyrethrins with piperonyl cyclohexenone and with piperonyl butoxide showed little residual action; di-2-(ethyl hexyl) phthalate exhbited no residual action.

Against mosquitoes, loss of residual effectiveness of most materials was gradual; against houseflies, a definite sharp loss of effectiveness was noted. The residual action of DDT wettable powders from several commercial sources differed considerably; two products which showed low initial action later gave excellent toxicity. R. W. Fay, E. L. Cole, and A. J. Buckner, *J. Econ. Entomol.* 40, 635-40 (1947).

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Toxic Clothing

Tests with rabbits on the effect of contact with cloth impregnated with the gamma isomer of benzene hexachloride, showed that such cloth may be definitely hazardous. At less than one gram per square foot of active agent on the cloth, contact proved lethal to four out of four rabbits in 72 hours. Unless it can be shown that man is markedly more resistant to contact with benzene hexachloride than the rabbit, this insecticide and miticide can be used safely as an impregnate for clothing only at concentrations so low as to eliminate its advantages over other similarly used compounds. R. G. Horton, L. Karel and L. E. Chadwick, *Science* 107, 246-7 (1948).

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Hexachlorocyclohexane

A method is described for determination of the gamma isomer of hexachlorocyclohexane in the technical product and in dust mixtures. The method is based on the dehydrochlorination of two 0.1 gram samples, dissolved in 50 ml. of 95 per cent alcohol, one for 15 minutes and the other for 50 minutes at 0°C. with 10 ml. of 1 Normal ethanolic potassium hydroxide. The per cent chloride difference multiplied by a factor yields the percentage of gamma isomer. J. B. LaClair, *Anal. Chem.* 20, 241-5 (1948).

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Inactivating Germicides

A resume has been given for inactivating the antibacterial activity of quaternary ammonium germicides. Synthetic anionic detergents, as well as soaps, fail to inactivate surface active cationic agents completely. A group of sulfonates and sulfonic acids was studied for their possible application as inactivators for the germicides. Suramin Sodium, (U.S.P. XIII), a highly complex organic sulfonate, more closely approaches the requirements for an inactivator for quaternary ammonium compounds than any other studied. C. A. Lawrence, *J. Am. Pharm. Assoc.* 37, 57-61 (1948).

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Copper Fungicides

Hydroxy copper soap of naphthenic acid in which the naphthenic acid has been partially or totally substituted by oleic acid, 2-ethyl hexoic acid, hydrogenated rosin, cocoanut fatty acids, or stearic acid, are good fungicidal agents. They show less tendency to coalesce than without such substitution. A. Minich, to Nuodex Products Co. Inc. U.S. Patent No. 2,423,611.

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Filter Fly Larvae Control

DDT is useful at a sewage plant to control filter-fly larvae, by use of a five percent emulsion in the trickling filter influent at one p.p.m. Sprays of five per cent control the adult filter fly, housefly, and mosquitoes at a dosage of one quart per 250 square feet. R. W. Simpson, *Sewage Works Eng. and Munic. Sanit.* 19, 23-4 (1948).

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Pyrethrin Synergists

The ethyl, propyl, isopropyl, butyl, allyl, benzyl, cinnamyl, and tetrahydrofurfuryl esters of piperic acid are insecticides and act as synergists with pyrethrins. M. E. Synerholm, to Boyce Thompson Institute. U.S. Patent No. 2,431,844.

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Toxicity of Quaternaries

In a two-year chronic toxicity experiment, alkyl dimethyl benzyl ammonium chloride was more toxic than sodium dioctyl sulfosuccinate or sodium lauryl sulfate. The quaternary ammonium compound was toxic to rats at a concentration of 0.063 per cent or more in the diet. At a concentration of 0.5 per cent all animals died within ten weeks. The degree of toxicity of other dosages was related to the concentration of the surface-active compound in the diet. The one per cent concentration of sodium dioctyl sulfosuccinate produced a significant retardation of growth rate. Sodium lauryl sulfate was not toxic at the dosage levels of one per cent or less in the diet.

In a four-month experiment, four per cent of sodium lauryl sulfate in the diet produced a significant decrease in growth of rats. Sodium alkyl aryl sulfonate, polyethylene glycol monoisooctyl phenol ether, and sulfoethyl methyl olylamide produced similar growth effects at two per cent concentration. Death occurred in all animals on four per cent sodium alkyl aryl sulfonate, on eight per cent sodium dioctyl sulfosuccinate, and on eight per cent sodium lauryl sulfate. Three of the five animals on eight per cent sulfoethyl methyl olylamide lived for the duration of the experiment.

The toxic effects of the surface-active agents studied in the experiments were produced by irritation of the gastrointestinal tract. To the extent which depended on the concentration of the surface-active agents in the diet, this irritation prevented proper nutrition. In severe cases of irritation death resulted. O. G. Fitzhugh and A. A. Nelson, *J. Am. Pharmaceutical Assoc. 37*, 29-32 (1948).

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Reversal of Germicides

The activity of the cation-active agents "Zephiran" and "Phemerol" against Gram-positive and Gram-negative bacteria could not be reversed by the anionic detergents, sodium decyl sulfate or sodium lauryl sulfate. Anionic detergents neutralize the bacteriostatic action of "Zephiran" against Gram-negative bacteria but not against Gram-positive bacteria. The cationic detergent "Zephiran" has a high degree of selectivity and possesses several hundred-fold greater activity against Gram-positive than against Gram-negative bacteria. M. Klein and Z. G. Kardon, *J. Bact. 54*, 245-51.

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Particle Size in Aerosols

Toxicity of aerosols to mosquitoes was increased 250 or more times by increasing the diameter of the particle from 0.33 micron to 11 microns. Toxicity is proportional to the rate of deposition which, in turn, is proportional to the square of the diameter of the aerosol particle for the size range mentioned. V. K. LaMer, S. Hochber, K. Hodges, and I. Wilson, *J. Colloid Sci. 2*, 539-49 (1947).

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Germicidal Test Problems

The limitations of a phenol coefficient are examined in the light of the physico-chemical principles underlying the evaluation of germicidal activity. The inaccuracies of end-point methods for determining bacterial death times are pointed out and the advantage of viable counting and biological assay are discussed.

The course of reaction may be followed by a series of viable counts from samples removed from the germicidal solution at intervals during the disinfection process. These readings, when translated into mathematical terms and treated graphically, can form the basis of a method whereby the sensitivity of the organisms can be evaluated and the suitability of the test assessed. Prudence must be used, however, in applying viable counting methods. Not every organism lends itself to an accurate counting technique. Many are inherent "clumpers" and do not yield a homogeneous suspension. Also organisms not conglomerated in a normal suspension may clump when added to a disinfectant solution. This problem is a difficult one to solve.

Much study is still needed on germicide evaluation. L. Michaels, *Manufacturing Chemist 19*, 60-6 (1948).

Structure of Germicides

Study of the bactericidal and bacteriostatic properties of a homologous series of alkyl benzyl quaternary ammonium compounds having substitutents in the aromatic nucleus shows that salts containing carbon chain lengths in the alkyl group of C_6, C_8, and in some instances C_{10}, show no germicidal activity in concentrations as high as 1:1000. An abrupt increase in the phenol coefficient occurs when the carbon atoms in the chain are increased from C_{10} to C_{12}. With some compounds a further increase in activity occurred when the carbon atoms were increased to C_{14}. An abrupt drop in phenol coefficient occurred with chain lengths of C_{16} and C_{18}.

Quaternary ammonium compounds containing two or three chlorine atoms on the benzyl radical are more active than those compounds containing one halogen atom or none. The critical zone of maximum activity at high dilutions occurs at C_{14}-C_{16}. Gram-negative colon-typhoid groups of organisms are more resistant to these germicides than Gram-positive bacilli.

Surface tension studies of a series of compounds show that surface-tension lowering increases up to C_{10} but does not change from there to C_{18}. No correlation exists therefore between germicidal activity and surface tension in the C_{12}-C_{18} series of compounds. C. A. Lawrence, C. E. Kevartler, V. L. Wilson, and E. W. Kivela, *J. Am. Pharm. Assoc., Sci. Ed. 36*, 353-8 (1947).

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Antifouling Paint Test

Results of immersion for three days of a surface carrying copper antifouling paint, can be used to determine whether the paint will leach out too rapidly to prevent fouling when immersed in the sea. The solution used to give this accelerated test is an alkaline glycine solution, in which an antifouling paint which depends on copper or one if its compounds dissolves 100 times as fast as in the sea. A large number of variations in a given paint formulation can be evaluated quickly. B. H. Ketchum, *Ind. Eng. Chem. 40*, 249-53 (1948).

Quaternary Sanitizers

A number of factors affecting the properties of quaternary ammonium compounds as sanitizers are discussed by G. M. Ridenour and E. H. Ambruster, School of Public Health, University of Michigan, in an article in the April, 1948 issue of the *American Journal of Public Health.* The authors reach the following conclusions:

1. Some cationic disinfectants of the quaternary ammonium type possess sanitization properties. However, sanitization efficiency varies widely for different compounds, amounting in certain cases to a required dosage of many hundred per cent for the same efficiency under the same conditions.

2. As with chlorine, their efficiency is influenced by many factors, such as temperature, hydrogen ion concentration, organic matter, and the common water mineral substances, calcium and magnesium. Other common natural water cations or anions seem to have relatively little effect.

3. Against different type pathogens, and other test organisms, *E. typosa, S. dysenteriae, S. schottmuelleri, S. aureus,* and *E. coli* showed similar resistance to sanitizing end points. *P. aeruginosa* and *S. marcesens* gave relatively high resistance.

4. Laboratory and field tests are available for the measuring of concentrations of most quaternaries. However, these tests are of questionable value since they do not measure the bactericidal factor in the compounds. They must, therefore, be separately evaluated for each specific situation, since the compounds vary widely in their effectiveness.

5. These data indicate that while, potentially, the cationic type compound can be considered in the class of eating utensil sanitizers, the same degree of intelligence, based upon fundamentals, must be applied in their use as with the chlorine type sanitizer.

6. It might be finally concluded that, at the present time, promiscuous use of these compounds, without proper adjustment of concentrations to their specific conditions of use might be hazardous. It does appear though that where the compounds are so adjusted, their use as sanitizing agents may be well justified.

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Carnauba Wax Substitutes

A substitute for straight carnauba wax can be made by mixing a small proportion of carnauba or similar hard vegetable wax with suitable other waxy materials. "Aroclor" resins can be used in blends of vegetable and hydrocarbon waxes. A resin of low chlorine content must be used when the final mixtures is to be used with kerosene-type solvents. The following blend gives a smooth, hard, wax melting at 78°C.:

	Percent
Aroclor 1268	30
Aroclor 1242	5
Carnauba wax	10
Ceresin	20
Paraffin	35

This mixture can be incorporated in paste polishes suitable for use on wood and linoleum, having the following formula:

	Percent
Above wax mixture	1
Natural ozokerite	3
Paraffin, hard	26
Kerosene	70

The warm paste should be poured at 40°C., followed by rapid cooling. Ouricury wax is the best natural wax to use in place of carnauba. More work is needed to develop suitable formulas using it in place of carnauba wax. G. W. Wood *Manufacturing Chemist* 19, 99-104 (1948).

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Mercury on Fabrics

A method is described whereby diphenyl mercury is produced *in situ* in textile fabrics. For example, 1500 grams of phenyl mercuriacetate are mixed with 3750 ml. of triethanolamine and 500 ml. of 80 per cent lactic acid, which acts as an inhibitor. This is diluted with water to five gallons, and 25 grams of citric acid are added, also an inhibitor. A textile-treating bath is made by adding 17 grams of this solution to one gallon of water. The fabric is treated with this bath and then dried at 225°F; diphenyl mercury is formed by the heat. The fabrics are bacteriostatic and fungistatic. F. J. Sowa, U. S. Patent No. 2,423,261.

New Quaternary Salts

From several new N'-substituted pyridine-3-sulfonamides, eighteen new quaternary salts were prepared, several of which compare favorably in germicidal activity with other established germicides. A series of 27 salts of nicotinamide, N,'N'-diethyl nicotinamide, and 4-(nicotinyl) morpholine were prepared and found to be active germicides. M. F. Zienty, *J. Am. Pharm. Assoc.*, Sci. Ed. 37, 97-99, 99-101 (1948).

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Japanese Beetle Control

The origin of the soil did not seem to be an important factor in use of technical DDT against larvae of the Japanese beetle. Speed of insecticidal action may be inhibited in poorly drained, and inadequately aerated soils. The insecticidal action was the most rapid in thoroughly leached and alluviated soils. No correlation was found between the effectiveness of DDT and the period the material had been in the soil. In field studies on four soil series, a ten per cent DDT dust applied to the surface of established turf at the rate of 25 pounds of DDT per acre caused a significant reduction in the larval population then in the soil and reduced the density of three subsequent annual broods to negligible proportions.

When applied as a 10 per cent dust or a spray to nursery beds and plots at the rate of 25 pounds of DDT per acre and mixed by cultivation with the upper three to four inches of soil, two subsequent annual broods were completely eliminated by mid-September. W. E. Fleming and W. W. Maines, Bur. Entomol. and Plant Quarantine E-716, 20 pp. (1947).

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Thiocyanate Deodorization

Deodorization of such insecticides as organic thiocyanates and isocyanates is carried out by dissolving them in petroleum ether and extracting with a solvent such as 50 per cent solution of sodium iodide in ethyl alcohol. This removes the impurities responsible for the odor. J. N. Borglin, to Hercules Powder Co. U.S. Patent No. 2,423291.

cause they may follow the air stream around such objects. Secondly, at increased air pressures, some of the spray "boils" back from the mixing chamber into the laboratory. These two factors may explain both the lower mortality and lower concentration of droplets per unit area.

Method of Testing

As a result of the tests previously referred to, the conditions under which the apparatus is operated have been set as follows: The air flow through the atomizer is controlled by a head pressure at six psi and maintained constant for any one series of tests. The air flow through the chamber is set to the maximum. The volume of spray solution, i. e., 0.5 cc. is set arbitarily to stay well under the maximum tolerance of the flies for "*Deobase*". Checks run periodically with 0.7 cc. of "*Deobase*" alone indicate a mortality due to "*Deobase*" of less than five percent.

In preparation for testing, it is necessary to make a series of recovery cages. These are prepared by lining the interior of the cardboard cartons with sheets of Kraft wrapping paper cut to 6 x 12 inches. A sheet of this paper is rolled to form a loose cylinder, inserted into the cardboard carton, expanded to fit the walls of the carton and inserted down into the ring at the bottom of the carton that formerly retained the cardboard bottom. A piece of 16 mesh galvanized screen, one-eighth of an inch larger in diameter than the bottom removed from the carton, is then slipped down from the top until it is against the bottom ring. Care must be exercized in this operation to avoid catching the paper lining. A like piece of screen is placed in the cover which fits over the end of the cage. The recovery cage is then placed on a rack with three shelves, constructed to hold a total of three layers of 10 cages each, to facilitate moving the recovery cages to a recovery room.

During recovery, the flies are fed on milk diluted with water, using one part milk and one part water. The flies obtain the milk from a small wad of cotton that has been soaked in the diluted milk. Prior to actual testing a sufficient number of balls of cotton about one inch in diameter are soaked in diluted milk. These soaked cotton balls are then placed on small squares of paper 1½ x 1½ inches and are located so as to be readily accessible to the operator during the test.

The next step is the transfer of the test insects to anesthetizing cartons. Two cardboard cartons similar to those used for recovery cages are employed for this purpose. They are fitted with screen bottoms and covers in the same manner as the recovery cartons, but no paper lining is used. The cover is removed and the carton placed in the trough projecting from the end of the air flow control (Fig. 1, J). Adapter (Fig. 1, F) is shut off, and the air flow control is opened wide. The sliding door of the rearing cage is removed and replaced by a sliding panel with a circular opening large enough to slip over the open end of the anesthetizing carton. The rearing cage is then placed with this opening around the anesthetizing carton. The sides of the rearing cage are gently tapped and the flies drawn from the rearing cage into the carton by the air stream. The rearing cage is quickly removed and the cover placed on the carton containing the flies. This carton is then placed in a large battery jar into which carbon dioxide flows from a large storage cylinder. Another group of flies is transferred to another carton and placed in the anesthetizing jar. By this time the first carton of flies are anesthetized and is transferred to one of the clean test cages which have previously been assembled. The top is then placed on the test cage. The carton is filled again and placed in the battery jar. The second carton is removed from the battery jar and the cycle repeated until a sufficient number of test cages has been filled. The test cage halves are usually paired before the flies are anesthetized and placed in a location easily accessible to the operator. After filling, they are placed on a clean surface until the flies have recovered completely from the anesthetic.

Before actual testing, the equipment is thoroughly cleaned. The air pressure setting is checked to see that it is constant and at the proper level. In spraying at six psi, the atomizer is turned on, and the air transformer is set to six psi while the air valve at the atomizer is open. Next the reservoir of the atomizer is washed with acetone to remove any small particles in the needle that might obstruct the free flow of the liquid. The reservoir is dried out by an air blast, and the measuring pipette is cleaned out with acetone and dried with air.

The detailed procedure from this point is closely followed in order to insure uniformity of testing.

1. Insert the first test cage, filled with flies, to one half of its length into adapter E, Fig. 1.
2. Place adapter on slide D, Fig. 1, and move slide forward until the projecting half of the test cage fits into adapter F, Fig. 1.
3. Charge atomizer reservoir with spray solution. (Reservoir in a horizontal position for this operation.)
4. Turn on air pressure and turn reservoir to vertical position.
5. Leave air pressure on until reservoir is exhausted.
6. Return reservoir to horizontal position.
7. Remove test cage from adapters.
8. Place test cage into anesthetizing jar.
9. Place next test cage in position.
10. Remove first test cage from anesthetizing jar, and transfer flies into first recovery cage.
11. Place milk-soaked cotton on paper square in recovery cage. Place cover on cage and return to its rack.
12. Repeat Steps 3 to 11.

Whenever the concentration of the spray solution is changed or a new material is used, the procedure is changed in the following manner. Instead of Step 9, clean out the atomizer and pipette with acetone and then proceed as above to Step 12. At this point, place the next test cage in position and repeat the above sequence.

After the flies have been sprayed and transfered to the recovery cages, the cages are removed to a re-

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covery room where they are left for 24 hours plus or minus one hour. At the end of the recovery period, the flies are counted to determine the percent of mortality. Moribund flies are counted as live flies. The recovery cage is placed in the trough of the test apparatus and the flies drawn into the rear of the cage by the air stream. The screen cover is replaced by a solid cover. The carton is then inverted with the dead and moribund flies falling into the solid cover. This cover is carefully removed and the screen cover replaced. The number of live flies escaping is noted down and the moribund flies counted and disposed of. The carton is then placed in the anesthetizing jar while the dead flies are counted. The carton is removed from the anesthetizing jar and the flies transferred to a Buchner funnel through which carbon dioxide is flowing in order to maintain the anesthesia. Small portions of the anesthetised flies are removed from the Buchner funnel, counted and killed by transferring to a 25 per cent alcohol bath. This is continued until all the live flies have been counted. The mortality percentage is determined as follows:

$$\frac{\text{No. dead}}{\text{No. dead} + \text{no. alive} + \text{no. escaped} + \text{no. moribund}} \times 100$$

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DAIRY CLEANERS

(*From Page* 43)

and metal parts of dairy equipment can be effectively sanitized by the use of a solution of 200 p.p.m. of quaternary compound. In preliminary investigations, they found that dual purpose powders as cleaner-sanitizer combinations offer considerable promise. They used a powder composed of alkaline cleaners, a sudsing agent and a quaternary ammonium compound.

In the meantime, chlorine-releasing compounds still hold the dominant position among chemicals for sanitizing dairy equipment. In addition to the familiar hypochlorites, several easy-to-use products have been marketed for making effective chlorine solutions of the requisite concentrations. The required strength usually ranges between 50 and 200 p.p.m. of chlorine. (1, 12)

Investigations (31) have shown that greater germicidal efficiency of chlorine solutions resulted when the pH of the solution was eight or below. Acid potassium phosphate was a satisfactory agent for adjusting the pH to the desired acid reaction. Laboratory and plant tests showed that a solution containing 50 p.p.m. of available chlorine at pH of approximately six produced as satisfactory germicidal results as a solution containing 225 p.p.m. of chlorine at a pH of about 10. When the chlorine solution alone failed to produce a sterile condition, the addition of 0.25 per cent of sodium alkyl aryl sulfonate gave sterility in three minutes even with a solution containing only two p.p.m. of available chlorine.

Similarly, in a study of methods for sterilizing dairy equipment, Weiser (32) found that the addition of an alkyl aryl sulfonate to the chlorine solution enchanced the efficiency of the solution. The principle of combining a chlorine-releasing compound (e.g. hypochlorite) with a suitable synthetic detergent has been used in a recently patented process (33) for making compounds that are excellent bleaching, germicidal, disinfectant and deodorizing agents.

BECAUSE milkstone is a barrier to the effective sanitization of dairy equipment, a number of milkstone removers are available. Alkaline preparations like the following (20) have been used for this purpose:

Trisodium phosphate	45 parts
Tetrasodium pyrophosphate ..	55 "

From the same source comes the following alkaline preparation for like use:

Sodium carbonate	20 parts
Sodium metasilicate	15 "
Trisodium phosphate	65 "

However, especially during recent years, acidic preparations, employing both inorganic and organic acids have found efficient use for removing milkstone. Often it is necessary to resort to dilute phosphoric or nitric acid to remove these deposits. (6) Thus, for removing milkstone from aluminum dairy equipment, Prevot (34) recommends the use of warm solutions of 10 per cent nitric acid. Products for removing milkstone from aluminum and aluminum alloys, patented abroad, (35) contain sulfuric acid as the chief active ingredient. Another foreign patent (36) specifies the use of aminosulfonic acid as an effective means for removing milk scale formations.

As is illustrated in the formula below, (20) surface active agents are useful adjuncts to acidic milkstone removers:

Phosphoric acid (50%)	30 parts
Monosodium phosphate	45 "
Water	20 "
Wetting agent (hydrocarbon sulfonate)	5 "

Also indicative of the usefulness of acid-wetting agent combinations are patented products (37) for chemically reacting with and releasing milkstone formations. These contain one or more of such acids as levulinic, gluconic and hydroxyacetic acid combined with a wetting agent, such as a compatible alkyl aryl sulfonate. Such compounds are also useful for cleaning metal dairy equipment to prevent the formation of the undesirable deposits.

INTEREST is growing in the use of acidic compounds as supplements or alternates to the usual alkaline detergents to prevent the formation of deposits and reduce bacterial counts. Parker's (38, 39) investigations are particularly important in this connection. His studies on the washing of milk cans showed the need of an acid rinse to remove the bacteria-containing films which remain after cleaning with alkaline detergents, hot water

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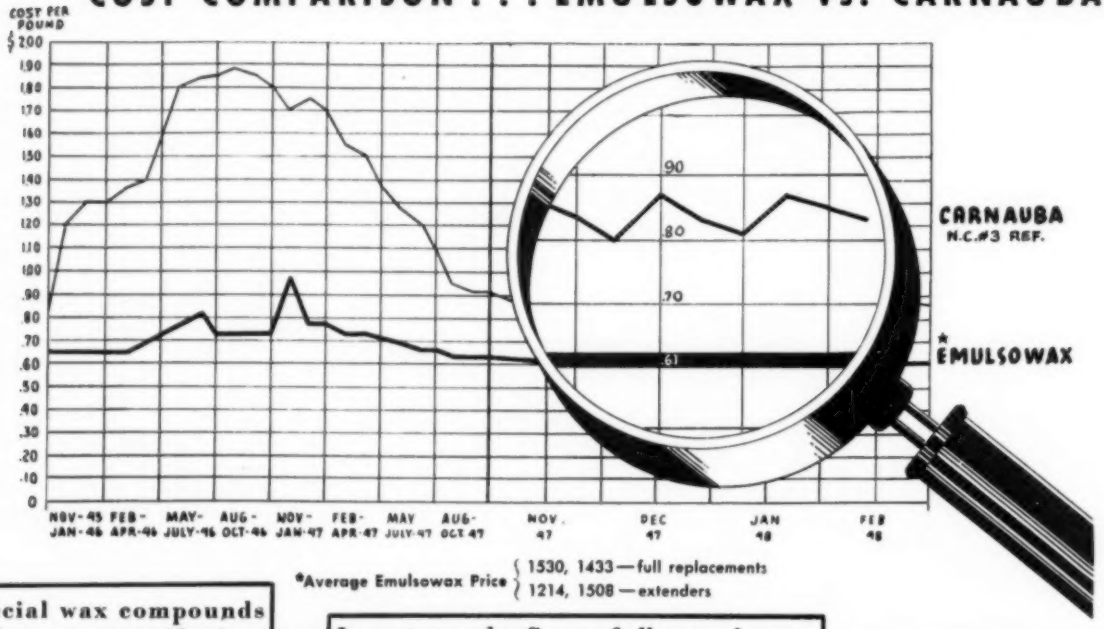

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rinses and steaming. A pH of six to 6.5 in the rinse water was satisfactory and gluconic acid proved least corrosive to the can metal. Similar studies were made on butter churns. The action of gluonic and levulinic acids injected with the steam into churns previously washed with a reliable alkaline detergent yielded results definitely superior to that of the alkaline detergent alone. With such treatment, high bacteria counts were suppressed, odors eliminated, and clean surfaces obtained.

Other work (40) has indicated that the use of an acid detergent is superior in some respects to the usual alkaline products employed in washing milk equipment. Recently, Shogren (5) has suggested a procedure whereby it is possible to take advantage of both types of detergents for cleaning dairy equipment and preventing milkstone. In his system the usual alkaline detergent is replaced every fourth day with an acid cleaning preparation. The standard procedure with alkaline cleaners is carried out on three successive days, but on the fourth day the acid product is substituted for the usual detergent; this procedure to become routine in the dairy plant. He recommends the use of a combination of organic acids and suspending and wetting agents, in either powder or liquid form.

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FOOD PLANT SANITATION

(*From Page* 141)

several months, the pest control operator is called in to perform a miracle overnight. He cannot do it with chemicals alone.

Suggested Remedies

THE cure for the insect and rodent-infested plant is a simple and entirely practical one. At the same time, a preventive action also takes place. The steps taken to effect the cure and prevention of the condition in the future can be summarized as follows:

1. Equipment should be purchased under specifications that include the phrase, "must be of all-metal construction (if practical) and readily demountable and easily cleaned".

2. Equipment should be located or relocated approximately 18 inches from walls and 10 inches from floor. Floor areas should be painted 18 inches from walls with white glossy paint.

3. Conduits, pipes, meter boxes, fuse and switch boxes and control panel boards should be located at least four inches from walls, using metal brackets as far as practical.

4. False ceilings should be removed. All closed areas should be opened.

5. All materials should be stored on 10 inch skids and 18 inches from walls.

6. All floors and walls should be coved; all openings that may be potential harboring places for insects should be caulked and sealed. All walls and ceilings should be made smooth and painted with an oil-base paint of light color.

7. Window sills should be constructed so that they slant inward; windows should be screened tightly and with ¼ inch mesh wire cloth as a double protection against insects and rodents. An air blast-out fan on one or two windows on the same side of the room will aid in keeping flying insects from entering the plant.

8. All miscellaneous equipment should be stored in separate rooms away from finished food and raw materials.

9. Doors and windows should be made to fit tight and be equipped with self-closing devices.

10. A supervisor should be employed to train employees in the habits of germs, insects and rodents and to supervise the daily cleaning and patrolling of the plant.

Chemicals will help in the fight against insects, germs and rodents, but alone they will not cure a food plant from the ills of infestation, filth and general lack of sanitation. The modern, clean food plant is one that has as its owner a person who recognizes the need for an intelligent defense against filth and univited guests through edu-

cation of its personnel, and installs within his plant equipment that is constructed and located so that the trained employee can, with the least amount of energy and labor, maintain the plant in a meticulously clean condition.

It may be necessary to substitute some of the old stand-by cleaning implements such as brooms and brushes with vacuum cleaners. Detailed instruction may have to be given each plumber and electrician who is employed to make repairs or install additional equipment. Raw materials will have to be examined and exteriors of containers will have to be cleaned—vacuumed and sometimes disinfected—before entering the plant. Separate rooms may have to be constructed for storage of finished products, paper, unused equipment and raw materials. It may be necessary to employ field representatives to inspect the premises of companies supplying raw materials and containers.

Modern food plant operators must recognize that they assume the entire responsibility for producing, transporting, selling and storing only wholesome, pure, unadulterated and uninfested food. Local regulatory authorities are set up to teach, instruct and train the employee how to keep the food plant clean. Federal, state and local regulatory authorities are also set up to prevent unwholesome, impure, adulterated and infested food from leaving a plant. The customers of food plants, as well as the ultimate consumers, demand this. Manufacturers of cleaning chemicals, insecticides and rodenticides can aid, if they will, by instructing and teaching food plant employees how to handle their products and by suggesting the redesigning of plants for easier operation and simpler sanitation maintenance.

YEAR ROUND EMPLOYMENT

(*From Page* 45)

that not only those who were entitled to operate under the steady employment plan, but practically all the others have had regular work.

If a manufacturer can get away from the sales curve and study the consumption curve of the commodity he makes, and can assure the workers steady jobs—even though only 60, 70 or 80 percent of them can be covered by his guarantee—the chances are that he will finally work around to the point where his plant is running steadily 48 to 52 weeks in the year.

In our own case, we have some problems now and then as we did a couple of months ago when the commodity markets broke sharply and the dealer and consumer shrank their purchases. For eight weeks we were compelled to carry larger inventories than we liked, but nevertheless we kept our production up. We knew that consumption was going on, and that it was just a matter of time until the inventory situation would be straightened out.

There are so many benefits to be derived from steady production that it is hard to enumerate them. I'll just take one problem that must be bothering many manufacturers today, and that is the cost of plant and equipment. Procter & Gamble is running its plants and equipment at a full 90 percent or better of its capacity by running uniformly. If we had ups and downs in line with the common trends, we would be operating at times on a 50 to 60 percent basis, which would automatically force us up to 130 and 140 percent to catch up later. There would be no way to do this except to have a 30 to 40 percent increase in plant capacity over what we have now and I can tell you that extra capacity would cost us over $100,000,000 in plants and equipment. Let's put it another way: we have saved the investment of $100,000,000-plus in our own business by operating steadily. Certainly we have a much more satisfied group of workers which also helps cut production costs.

From a buying standpoint we are able to buy more cheaply, because we can place orders to come through every week of the year and we have lowered our costs in that way. We have influenced steady employment in the plants of suppliers and it is my belief that it is a very worthwhile thing. Stability in one plant works in widening circles. If it is ever put into effect on a large enough national scale, it will ultimately exert a tremendous direct influence in stabilizing the economy of the entire conutry.

Whenever I discuss this subject, I am always compelled to say that a man who makes a primary product is, more or less, at the mercy of the processor. I mean by that a steel company, a foundry, or business like that. If we are going to have sporadic buying in raw steel, those companies which manufacture the raw steel are almost helpless. There is no use talking about steady employment in those basic industries unless we processors, who take the raw product, will regulate our business and the goods which we take from them.

SOAP ADVERTISING

(*From Page* 30)

takes some courage to do that. It is easy to burn with zeal over a wonderful product when the scientific department says that you have a half dozen great improvements. You want to play up all those points. But, of course, the reader gives your advertisement one-fifth of a minute, or one-tenth of a minute. She isn't working hard doing homework for you. So, you must have courage enough to throw away some valuable properties. You have to decide which idea belongs in the headline. You pick the best idea you have and write it, and put the other copy in the fine print—and you should have little of that, as we see it.

Thus, we streamlined advertisements aimed at a single important objective, and then we repeated the same thing over and over and over again, burning in the one point on which we had the greatest right to claim the patronage of the housewife.

Lever Brothers Company is putting its faith in the future. We are expanding, and have been expanding our present plants. On our drawing boards we are working on the final touches for two new plants in the mid-west and southwest. We have launched new products and are launching more.

Moore Joins Trask

James J. Moore, for the past 12 years connected with Merchants Chemical Co., Chicago, recently joined the sales force of Arthur C. Trask Co.

N.S.S.A. MEETING

(*From Page* 123)

treat salesmen as you yourself would like to be treated. The next question was: "What is a fair average net profit?" The question drew these answers: 1.) It depends upon the location and conditions in an organization; 2.) It is a difficult question to answer since many conditions affect the profit and also the volume of business; 3.) On an annual volume of $500,000, five percent would be a good profit, on $100,000 10 percent would be the proper profit; 4.) Depends upon volume of business and salary of the owner.

Another question was: "How can a distributor handle orders of less than $10 profitably?" Answers: 1.) Can't be done profitably; 2.) Do it as a service to customer; 3.) A business must make 50 percent on each sale and on that basis a $10 order can be handled profitably; 4.) Won't deliver the item and try to increase the size of the order.

Varied answers were received on reply to the question: "Do you consider a floor cleaner with a pH of 11 to be injurious to concrete and asphalt tile floors. Answers: 1.) Product with high pH will do damage; 2.) pH of nine is about as high as it should be; 3.) Must have pH of 11 to clean properly.

Question. Few distributors handle a manufacturer's entire line and manufacturers sometimes sell direct. Isn't it shortsighted for dealers to switch lines constantly? Answer. If manufacturer is not getting proper representation he has a right to sell direct.

What is normal mark-up on towels and toilet tissues? Ans. 45 percent on single cases and downward on larger quantities. 18 percent on large quantities such as several carloads per month.

Following Marshall Magee's report on the banquet the following night, the meeting adjourned.

The banquet on Wednesday night was one of the largest ever held by the Association. An estimated 900 people attended.

The 1949 convention of the National Sanitary Supply Association will be held at the Hotel Sherman, Chicago, May 8, 9, 10 and 11. Reason for the change in the annual meeting place of the N.S.S.A. from the Morrison Hotel, was given as the need for more space. It is planned that all exhibitors will be on one floor at next year's meeting. It was also announced during the meeting that regional meetings were to be discontinued in favor of local meetings with executive vice-president Leo J. Kelly.

Westvaco Changes Name

Westvaco Chlorine Products Corp., New York, recently changed its name to Westvaco Chemical Corp. in order to describe more accurately its activities.

Va. Registration Deadline

Deadline for registration of economic poisons in Virginia has been set for June 29, it was announced recently by Rodney C. Berry, State Chemist. Registrations do not require sending of samples with applications, except on special request.

Koppers Shifts Offices

Consolidation of divisional sales offices in the Empire State Building, New York, for the New York area and a similar step in Chicago, moving offices to the Peoples Gas, Light & Coke Building were announced May 1 by Koppers Co., Pittsburgh.

Lever Buys Rayve; to Build

Acquisition of two new products, "Rayve Creme Shampoo" and "Hedy Wave Home Permanent" from William R. Warner Co., New York, was announced early in May by Lever Brothers Co., Cambridge, Mass. The new products will be sold through the Pepsodent Division of Lever Brothers. Also involved are "Rayve Creme Hair Dressing" and "Rayve Caress Hair Dressing."

The construction of a complete fatty acid production plant at Hammond, Ind., by Lever Brothers Co., was announced recently with the awarding of a contract for design and building to the chemical plants division of Blaw-Knox Co., Pittsburgh. Construction of the plant, which is to be stainless steel and aluminum, is to begin immediately. The process will start with fats or oils and hydrolyze them in a continuous high pressure tower to glycerine and fatty acids. The fatty acids will be refined by distillation and used by Lever Brothers in their own products.

SODIUM PYROPHOSPHATE

(*From Page* 45)

ducer, pyrophosphate soon established its position of eminence.

In 1936, recognition of the value of increasing the lathering power of certain wetting agents(i.e. sodium isopryl napthalene sulfonate) led to applications in the textile industry. Textile applications include use for "solubilizing" iron salts as an additive for hydrogen peroxide bleach baths, for "soaping off" after dyeing with napthol and other colors, as an additive to soap in boil off and scouring of rayons and nylon.

The development of new uses during the war promises a wider market in the future. Ample capacity now exists for making phosphoric acid and elemental phosphorus. Whatever the demand for sodium pyrophosphate in 1948, productive activities seem adequate.

GERMICIDAL AEROSOLS

(*From Page* 127)

shows the loss by settling of air-borne bacteria from the chamber when no germicide was introduced. The percentage loss is shown graphically in Figure 2. A nearly straight line is obtained by plotting the log of the percentage of organisms remaining dispersed in the air against the time. The second section in Table II shows the greatly increased loss when an aerosol of dipropylene glycol was introduced after the first two minute period. This greater loss is evidence of the germicidal action of this glycol since dead bacteria do not form colonies on the plates. The results are shown graphically in Figure 2. The third section of the table shows the effect of an aerosol containing both dipropylene glycol and cetyltrimethylammonium bromide. The initial reduction was greater than with the glycol alone due to the ac-

Spread and Power

Effective pest control requires wide spread of insecticide and the driving power to force it into every crack and crevice—under mouldings, behind baseboards, around plumbing, between cases and bales.

Mistmaster Ball Bearing Fan Type Sprayers have both the speed and the power to do a quick, thorough job. Driven by 1/3, 3/5, or 1 hp. motors, they spray insecticides for distances as far as 40 feet, penetrate into hard-to-reach places, and spray large areas quickly, completely.

Here is a sprayer that has more power than any other portable sprayer, yet is convenient and easy to handle. Equipped with 1-gallon non-corrosive tank, driven under low pressure with a high volume of air, it can be used with any type of insecticide, either oil base or water base, and carries insecticides into remote openings in full volume and power.

Used anywhere, it plugs into any electric outlet, and is supplied with three nozzles for fine, medium, or coarse spray. Can also be furnished with 2-gallon tank and special nozzles or in special design to meet individual requirements.

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- **TERRAZZO SEALER**
- **TERRAZZO FINISH**
- **GYM FLOOR MARKING ENAMEL**
- **MASTIC ASPHALT TILE SEALER**
- **VAR-LIN**
- **LIGHTNING LUSTRE**
- **333 SELF POLISHING WAX**
- **DRI-FAST SEAL and FINISH**
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- **READY-MIXED CON. COLORS**
- **GYM FINISH CLEANER AND POLISH**
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FLOOR FINISHES DEPT. 548

Ashland Ave. at 29th St. **Chicago 8, Ill.**

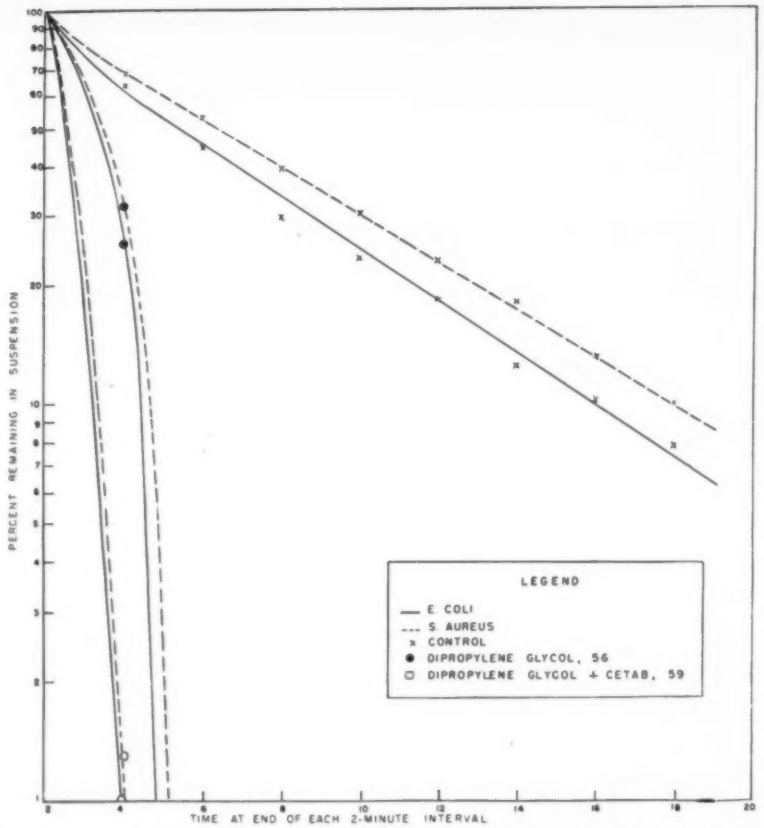

FIGURE 2. CURVES SHOWING THE REDUCTION OF E. COLI AND S. AUREUS SUSPENDED IN AIR AFTER APPLYING GERMICIDAL AEROSOLS OF DIPROPYLENE GLYCOL, FORMULA NO. 56, AND DIPROPYLENE GLYCOL WITH CETYLTRIMETHYL AMMONIUM BROMIDE (CETAB), FORMULA NO. 59.

tion of the quaternary ammonium compound which collected on the agar plates. A few colonies developed on the later plates in the series, which may show the presence of some more resistant species or strain . These results are also shown graphically in Figure 2.

The plate left exposed for 18 minutes should contain approximately the same number of colonies as the sum of those found on the nine exposed for two minutes each unless the germicide settling on the plate prevents growth. With dipropylene glycol there was no reduction of colonies on this plate, since this germicide acts only in the air, but when cetyltrimethylammonium bromide was present very few colonies developed. These figures are shown in Table II.

Conclusions

FROM the experiments it was shown that suitable germicides are available for the formulation of liquefied gas aerosol solutions. No difficulties such as corrosion of the container, color formation, chemical reaction or precipitation occurred when dipropylene glycol and cetyltrimethylammonium bromide were used. Aerosols containing only dipropylene glycol were very effective in reducing the bacterial population of the air but were not germicidal on surfaces. The addition of cetyltrimethylammonium bromide gave the desired effect on surfaces. The action of both aerosols was about equal on *E. coli* and *S. aureus*. The addition of cetyltrimethylammonium bromide to the formula caused a greater reduction of both organisms because the droplets of germicide which fell on the plates prevented the growth of bacteria not already killed in the air.

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SKIN CLEANSERS

(*From Page 36*)

not contain the offending materials.

If the cause of the dermatitis is the defatting or keratolytic action of all soaps, superfatted soaps, or superfatted sulfonated castor oil may be tried. If this is not well tolerated, then olive oil should be used as a cleanser until such time as the inflammation subsides. After the dermatitis has subsided, it is of value to have the patient use on the skin an emollient containing lanolin or cholesterol after each washing.

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First Soap for N. Y. Schools

NEW York's 900,000 public school children may be furnished with soap and paper towels during the 1948-49 terms as a result of a provision of $100,000 for the purpose, which was included in the proposed 1948-49 budget adopted April 27 by the Board of Estimate. The current budget is believed to be the first in which a specific provision was made to furnish school children with soap and towels. At present, pupils in kindergarten classes, which have separate lavatory facilities, are the only ones who are provided with soap and towels. These articles were purchased with funds earmarked for "school supplies," because no specific sum had been set aside for soap and towels.

A plea to provide funds for the specific purpose of furnishing soap and towels for public school children was voiced at hearings of the Board of Estimate on the budget by Dr. William Jansen, superintendent of schools, who asked that $640,000 be allowed for soap and hand-drying equipment in the schools.

In addition to Dr. Jansen, the United Parents Association of New York City has been urging that something be done to improve sanitation facilities in the schools and provide pupils with soap and towels. The U.P.A. objected strongly to the fact that New York City had planned to spend more than half a million dollars for the Golden Jubilee celebration this year, when the sum was "desperately needed to replace outmoded school sanitary facilities and provide soap and towels for the city's school children."

Kindergarten pupils are provided with a "standard liquid soap" and paper towels. Since they have their own lavatory facilities the problem of sanitation is not as acute as with the upper grades and high schools. Because of the lack of or shortage of toilet facilities, even if soap and paper towels or air driers are provided, the washing is complicated by overcrowding in schools.

Recently, the Bureau of Plant Operation, under whose jurisdiction come school custodians, set up an experimental program in 12 schools throughout New York City to study the problem of providing soap and towels for school children. The program is also thought to have as one of its objects the determination of the cost of furnishing cleaning supplies to all children in the City's public school system. Under the program paper towels, liquid and powdered soaps, dispensers and mechanical air driers have been installed. Since the experimental program has just been set up, it is too early to assess the results.

Velsicol Wins Denver Suit

In one of two legal actions involving Velsicol Corp., Chicago, and Julius Hyman & Co., Denver, both manufacturers of chlordane, Velsicol was awarded the decision of Judge W. A. Black in the District Court, City of Denver, his decision being handed down April 21. The Velsicol complaint sought damages from a series of defendants, including Julius Hyman, because of alleged wrongful use by the defendants of trade secrets belonging to Velsicol.

The court has appointed an agent to determine the extent of the damages and meanwhile has enjoined the Hyman Company, its officers, agents and employes from manufacturing, distributing and selling "Velsicol 1068" or "Octa-Klor." Judge Black ruled that "the defendant Julius Hyman has wrongfully converted to his own use, contrary to law and equity, the property of the plaintiff corporation, to the plaintiff's damage, and is liable in damages therefor." The judge ruled that seventeen other defendants had violated secrecy agreements signed with Velsicol Corp., and had illegally divulged to the Hyman Company processes, formulas, plans and trade secrets of Velsicol's, and that the defendants were liable for damages.

Velsicol-Hyman Patent Suit

Patent litigation between Velsicol Corp., Chicago, and Julius Hyman & Co., Denver, following the recommendation of a Master in Chancery, is reported to have been decided in favor of Velsicol in a federal district court hearing in Chicago. The text of the court's decision had not been made available as this issue went on the press.

In a statement following the rulings in Denver and Chicago, Dr. Julius Hyman, president of the Denver company, said: "There will be no interruptions in the production and marketing of Octa-Klor brand technical chlordane." In a later statement, the Hyman Company added, "Our legal counsel have again assured us that those who buy and use Octa-Klor will incur no liability whatever."

Henkel Patents in U. S. Suit

Alleged ownership by Henkel & Cie., German soap manufacturing concern, of American Hyalsol Corp., New York patent holding firm seized by the Alien Property Custodian in 1943, was charged in an indictment presented by a Federal grand jury in New York, May 5. Involved in the case, which arises out of tax litigation totaling $500,000 are Dr. Lewis H. Marks, vice-president of Publicker Industries, Inc., Philadelphia, president of American Hyalsol Corp., and Nelson Littell, head of Hammond & Littell, New York, well known chemical patent attorneys, and treasurer of Hyalsol.

Synthetic detergent patents of the Henkel company were held and licensed in the U. S. by Hyalsol, according to the Government attorney. Licenses under the patents were issued to E. I. du Pont de Nemours & Co., Procter & Gamble Co., and Richards Chemical Co., none of whom was named in the indictment.

Procter & Gamble, news reports state, loaned $300,000 to Hyalsol for advance royalties. The U. S. Government seized $5,000,000 in cash believed to belong to Henkel and $1,000,000 in securities found in possession of American Hyalsol Corp.

N. A. I. D. M. Meets June 14-16

GORDON M. BAIRD

FRIAR THOMPSON

PLANS for the mid-year meeting of the National Association of Insecticide & Disinfectant Manufacturers, scheduled to be held June 14, 15, and 16, at the Monmouth Hotel, Spring Lake, N. J., were announced early this month by Friar Thompson of R. J. Prentiss & Co., New York, who is in charge of program arrangements for the meeting. A three-day session has again been scheduled, but the program has purposely been streamlined to allow more opportunity for informal group discussions, committee meetings and the various social features. Formal business sessions will be confined to three morning meetings.

The meeting will get under way Sunday, June 13, preceding the start of the convention, with several committee meetings set for the afternoon, and a meeting of the board of governors in the evening. Monday morning, June 14, the business sessions will open with a brief address by the association president, Gordon M. Baird of Baird & McGuire, Inc., Holbrook, Mass., and the report of the secretary, H. W. Hamilton of H. W. Hamilton Co., New York.

Guest speakers at the Monday morning session will set the general theme for this year's program which is to be built around marketing, sales promotion, and development of new products. One of the featured speakers will be Ephraim G. Freedman of Macy's Bureau of Standards, R. H. Macy, Inc., New York who will talk on "Trends in Consumer Demand for Household Products in the Sanitary Field." Dr. E. C. Bursk will conclude the Monday morning session with suggestions on "Introduction of a New Specialty to the Market."

At the Tuesday morning session June 15, Dr. W. G. Reed of the U. S. Department of Agriculture is to talk, giving a "Progress Report on the New Insecticide Act." Dr. W. W. Peter, expert on cleanliness and sanitation education connected with the Bureau of Inter-American Affairs, U. S. State Department, will speak on "Selling Cleanliness and Sanitation." A. S. DuBois of Fuld Bros., Baltimore, will discuss "Pine Oil in Scrub Soaps." Tuesday evening a moving picture film prepared by the National Livestock Loss Prevention Board will be shown. It is titled "Better Livestock" and emphasizes the important role of insecticides, disinfectants and sanitary chemicals in producing heavier and healthier cattle.

The program for the Wednesday morning session has not as yet been completed, but the morning session will feature an Insecticide Forum, with Ira P. MacNair acting as moderator. Problems of the industry, including product formulation, packaging, sales, labeling, dispensing, etc., will be discussed by a panel of experts who will also answer questions from the floor in what promises to be a lively session. Also tentatively scheduled for Wednesday morning is a talk by a representative of the Food and Drug Administration who is to review "The F. D. A. Position on the Testing of Antiseptics and Germicides."

The National Rat Control Program which has been in effect for the past several months will be discussed by Harold Noble of S. B. Penick & Co., New York, from the angle of tying in rodenticide sales.

Although there will be no general meeting Wednesday afternoon, several group meetings and open forums have been arranged. A Floor Wax Forum will be held under the leadership of Melvin Fuld, Fuld Bros., and John Conner, association legislative consultant. Subjects to be discussed include the new floor wax specifications and suggested fair trade practice rules. Also scheduled is an open meeting of the Disinfectant Scientific Committee.

The closing informal dinner and floor show will be held Wednesday evening. A golf tournament is scheduled for Tuesday afternoon in addition to other sports events to be announced later.

The program committee is headed by Friar Thompson of R. J. Prentiss & Co., New York. Other members of the committee include Melvin Fuld of Fuld Brothers, Baltimore; John Powell of John Powell & Co., New York; C. A. Lawrence of Winthrop-Stearns, Rochester; C. L. Weirich of C. B. Dolge Co., Westport, Conn.

Sonneborn Shifts Kaufman

Robert J. Kaufman of L. Sonneborn Sons Co., New York, was recently transferred to the company's Chicago office to replace Robert Sandke, who is now representing Sonneborn on the West Coast. Mr. Kaufman joined the Sonneborn sales force in 1943. He was in the Army from 1941 to 1946, and served with the rank of captain.

TRADE NEWS . . .

NAIDM Shifts Meeting Place

The 35th annual meeting of the National Association of Insecticide and Disinfectant Manufacturers will be held Dec. 6 and 7 at the Hotel New Yorker, N. Y. it was announced recently. Originally, the meeting was scheduled to be held at the Hotel Commodore, but this reservation has been cancelled, according to N.A.I.D.M. advices. Reservations for the convention should be sent direct to the Hotel New Yorker, care of Robert Carman, convention department.

Sayman Buys "Jitter Bug"

Sayman Products Co., St Louis, has recently purchased the insect repellent "Jitter Bug" from Becker-Bischoff Chemical Co., who originated the product. "Jitter Bug" has been distributed for Becker-Bischoff during the past two years by Grove Laboratories. A national advertising campaign is planned for the product by Sayman.

Announce New Insecticide

A new "2-way" roach and insect spray that comes packaged 32 ounces in a self-container dispenser with a finger-operated hydraulic type sprayer was introduced recently by Nash & Kinsella Labs, Inc., St. Louis. The new product retails for $2.95, with re-fills available for $1.80. The spray is said to be non-poisonous, odorless and stainless.

Form H. W. Hamilton Co.

H. W. Hamilton Co., New York, has been formed to engage in the manufacture and sale of chemicals, disinfectants, insecticides, and bulk sanitary specialties for the trade. H. W. Hamilton, for the past 28 years associated with the White Tar Division of the Koppers Company at Pittsburgh and Kearney, N. J., is president of the new firm. Gordon M. Baird, head of Baird & McGuire, Inc., Holbrook, Mass., is vice-president and treasurer. In addition to its New York headquarters, the company will establish offices in Washington, D. C. and Boston, Mass. The company's New York office is located at 34 East 39th Street.

H. W. HAMILTON

Mr. Hamilton, secretary of the National Association of Insecticide & Disinfectant Manufacturers for the past seven years is also a past president of that Association. He is a graduate of Bates College, and of Massachusetts Institute of Technology in biology and public health. He served as captain in the U. S. Army Sanitary Corps in World War I, joining the White Tar Co., purchased by Koppers in 1929, upon leaving the service.

Mr. Baird is currently president of the NAIDM and a son of the late C. Campbell Baird, one of the founders of that Association in 1914 and a founder of Baird & McGuire, Inc., Holbrook, Mass. Mr. Gordon Baird has been active in NAIDM affairs for the past fifteen years and is widely known in the disinfectant and allied chemical specialty industries. As president of Baird & McGuire, Inc., Mr. Baird's headquarters will continue as heretofore at Holbrook, Mass.

Revise Floor Wax Spec.

The National Bureau of Standards, U. S. Dept. of Commerce, Washington, D. C., has issued a proposed revision of Federal Specification P-W-158 for Wax, General Purpose; Solvent Type, Liquid and Paste. In the new draft the minimum softening point for the non-volatile matter has been raised to 75° C. as compared with the previous figure of 71°. The former maximum figure of 8 set for acid value and the 20 - 70 minimum and maximum for saponification value have been deleted in the new specification. Type II (paste) shall be a semi-solid material at 20 to 22°C. The range in the present specification is 20 to 25°C. The proposed new specification on which the Bureau would welcome comments and criticism, is designated P-W-158a.

The Bureau would also welcome comments from interested parties on a proposed new pendulum-type device for testing floor slipperiness.

Joins CSC Staff

Commercial Solvents Corp., New York, recently announced the appointment of William L. Earhart as a salesman for the agricultural division, with headquarters in Philadelphia. He will cover the eastern seaboard for the company.

Names Southern Rep.

Aubrey Clapp was recently appointed southern district sales manager for Standard Disinfectant Co., Memphis. He will have headquarters in Memphis and Atlanta, dividing his time between those cities.

New Can Type Aerosol

Bostwick Laboratories, Inc., Bridgeport, Conn., are now marketing their new, low-pressure aerosol dispenser to retail between 98 cents and $1.09, they announced recently. The new product, "Hep," is prepared in a 12 ounce can type container. In addition to DDT, "Hep" contains pyrethrum.

Airkem Advances LoMele

Albert C. LoMele, was recently appointed vice-president and sales director of Airkem Industrial Distributors, Inc., a subsidiary of Airkem, Inc., New York, it was announced recently. Prior to joining the air-freshening compounds company in 1941, Mr. LoMele was with Associated Merchandising Corp., New York.

F. T. C. Meets Wax Industry Group on Rules

A CONFERENCE with nine representatives of the floor wax products industry and interested related groups was held April 8 in the office of Henry Miller, director of trade practice conferences of the Federal Trade Commission, Washington, D. C. The purpose of the conference was to hold preliminary discussions prior to a formal industry conference for the establishment of fair trade practice rules "designed to eliminate deceptive and other unfair trade practices in the marketing of (floor wax) industry products."

One of the phases of the discussion in Mr. Miller's office in Washington, April 8, dealt with clarification of definitions of the following ten points:

"1.) **Waterproof, impervious to water, water resistant, will not spot, will withstand damp mopping, etc.**

2.) **Heavy duty, traffic wax, etc.**

3.) **Non-skid, slip-proof, non-slip, slip retardant, anti-slip, etc.**

4.) **Will outwear all ordinary wax, last indefinitely, etc.**

5.) **Cost less, ordinary waxes cost more, etc.**

6.) **Contains only Carnauba wax, etc.**

7.) **New floor treatment, new secret, etc.**

8.) **The only wax suitable for certain purposes, etc.**

9.) **Army and navy wax, etc.**

10.) **Manufactured by, etc."**

Present at the conference were M. A. Macdonald and Lawrence Kiefer, representing the National Paint, Varnish & Lacquer Association, Washington. D. C.; Al Candy, Candy & Co., Chicago, and Leo J. Kelly, executive vice-president, National Sanitary Supply Association, Chicago, representing the N.S.S.A.; Melvin Fuld, Fuld Brothers, Inc., Baltimore and John D. Conner, Washington, D. C., counsel, representing the National Association of Insecticide & Disinfectant Manufacturers; from the floor products industry, Gilbert McInerny, Boyle-Midway, Inc., New York; Jervis J. Babb and K. R. Nelson, S. C. Johnson & Son Co., Racine, Wis.; and A. Johnson, representing Charles La Roche of Franklin Research Co., Philadelphia.

The definitions of the ten points listed above are to be included in the rules for the industry. The F.T.C. and the industry will try to find definitions that are considered satisfactory. Proposed drafts of rules and definitions will be submitted to the floor wax products industry for comment. The F.T.C. has asked that these drafts with comments be returned by May 15. The definitions were to be discussed at a luncheon of the wax manufacturers' section of the New York Paint, Varnish & Lacquer Association, May 6, at the Hotel Martinique, New York.

Another meeting of the original group who meet April 8 with the F.T.C. in Washington, will be held there on June 2 to consider the rules as drafted and to decide upon the time and place for an industry conference to be held before July 1. It is understood to be doubtful that the meeting will be held by July 1, and the N. Y. Paint, Varnish & Lacquer Association, wax division, is reported to have asked for a postponement of the full industry meeting.

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New S-W DDT Line

A complete new line of DDT products to be sold under the name "DDTOL" was announced recently by Sherwin-Williams Co., New York. Included in the line are eight different formulations of the material. Among the new DDT products are "DDTOL 25% Emulsifiable," a xylene solution containing two pounds of DDT per gallon and especially designed for hand sprayers, low gallonage sprays, etc.; "DDTOL 30% Solution" containing 2.5 pounds of DDT with xylene as the solvent for controlling forest insects, mosquitoes and household pests where oil is used; "DDTOL 50% Dust" for use by manufacturers of finished dusts for household and other purposes.

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Boyle Names Tingdale

The appointment of Warren Tingdale as vice-president in charge of sales of Boyle-Midway, Inc., New York, was announced recently by Strieder Schraffenberger, president. An authority in the packaged foods field, Mr. Tingdale has a broad background

WARREN TINGDALE

of experience in sales, merchandising and promotional work. Boyle-Midway, a division of American Home Products Corp., markets waxes, polishes and cleaners; insecticides, and deodorizers.

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Warns on New Insecticides

Insecticide users were cautioned in a recent bulletin of the U. S. Department of Agriculture to obtain full information about the limitations and hazards of insecticide materials before applying them. Such a course is necessary in order to safeguard crops, livestock and the health of the consumer, as well as that of the user himself. The Department of Agriculture makes specific recommendations regarding the use of benzene hexachloride, DDT, parathion and tetraethyl pyrophosphate. On the latter two, it advises special caution in handling and using. Because of insufficient information on the toxicity of chlordane, chlorinated camphene, tetraethyl pyrophosphate and parathion, the U.S.D.A. recommends that they be used only when it is known that residues will not remain or can be effectively removed from plants after harvest.

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Sandke Advanced

Robert J. Sandke, who has been associated with the firm for 18 years, was recently placed in charge of West Coast sales of the white oil and petrolatum division of L. Sonneborn Sons, Inc., New York.

Mothproofer to Residex

Residex Corp., Newark, N. J., was recently appointed exclusive distributor to the pest control industry of a new mothproofing compound manufactured by Bocon Chemical Corp., New York. The product is an adaptation of the mothproofing compound introduced recently under the name "Boconize" for textile mill treatment of woolens and animal fiber fabrics. The product, according to the announcement, was specially developed for use by pest control operators after studying the mothproofing requirements of the field. It will be futher processed by Residex Corp. and sold under the trade name "Resiproofer". Residex Corp. is an affiliate of Western Exterminating Co., Newark. Application of the product, which is said to be non-inflammable and non-toxic, is by standard spray equipment for in-the-home treatment of rugs, carpets, upholstery, etc. "Resiproofer" can be mixed with insecticides to give moth killing as well as preventive treatment, according to the company. The product is claimed to be unusually durable in that it can provide protection even after 25 dry cleanings or three soap and water washings. It is claimed to be fast to perspiration and light, and leaves no residue or "harsh" feel.

Britton Heads Enjay Co.

John A. Britton, Jr., vice-president has been elected as president of Enjay Co., New York, the chemical products marketing affiliate of Esso Standard Oil Co., succeeding H. W. Fisher, it was announced by the company Apr. 10. Another change involves O. V. Tracey, assistant manager of Esso's Standard Chemical Products Dept., who has been elected a director to succeed Dr. H. G. Burks, Jr. The new Enjay president has been vice-president of the company since its organization last year. Previously he had been associated with Standard Oil Co. of New Jersey and affiliated companies for 27 years.

Mr. Tracy joined the research department of Standard Oil Co. of Louisiana at Baton Rouge in 1930. He pioneered and has continuously associated with the developments of alcohols, additives, synthetic rubber and other chemicals and until recently

JOHN A. BRITTON, JR.

was manufacturing co-ordinator of such products for Esso Standard Oil Co.

H. W. Fisher, retiring president and general manager of East Coast manufacturing and manager of the chemical products department of Esso Standard Oil Co., will continue to serve as a director of Enjay Co.

Felton in New Building

Felton Chemical Co., Brooklyn, recently occupied new and expanded quarters in a modern four-story, steel and concrete structure adjacent to their existing group of buildings at 599 Johnson Ave. Features of the new building are chemically resistant ceramic walls and floors, a two-story enclosed bridge connecting with the main building and the generous use throughout of chromium and glass. The completion of the new unit marks the end of an expansion program initiated five years ago and which has resulted in a four-fold increase in floor space and manufacturing facilities at the main plant at Brooklyn, a new factory designed by Robert Felton and built under his supervision at West Los Angeles, and the pending occupation of larger quarters in Montreal, Canada. The completion of the company's five-year expansion program coincides with the 25th anniversary of the company, which is to be celebrated later this year.

Innis Agent for Deodorizer

Innis, Speiden & Co., New York, are distributing the new "Mul-T-Vapor" aerosol deodorizer recently announced by Edco Corp., Elkton, Md. The new dispenser is a five pound bomb, which has as its active ingredient "metazene," an odorless, non-toxic, non-staining, non-corrosive and neutral synthetic organic chemical.

Hold Variety Store Fair

The Third Central Variety Store Merchandise Fair, sponsored by the St. Louis District of the National Association of Variety Stores was held in the exhibition hall of the Hotel Statler, St. Louis, May 9-12, inclusive. One of the features of the show is the selection of the "Independent Variety Man of the Year" by manufacturers supplying the variety industry. The election will be a regional one for the national contest running as part of the Sixth National Association of Variety Stores Merchandise Fair to be held in Chicago Aug. 2-5.

A. Schwarz Visits the U. S.

Adolph Schwarz, president of N.V. Polak & Schwarz, Essence Fabrieken, Holland, was a recent visitor to the United States. During the three months he was here, Mr. Schwarz discussed plans for expanding the American company. These plans include the building of a new factory and the opening of additional offices and expanding personnel. Mr. Schwarz was accompanied by his wife and daughter on the trip, his second since the end of the war. While here, Mr. Schwarz' daughter's engagement to R. Vanderpol, a student at Boston University, was announced.

Lab Scents Features Lilac

The Feb.-Mar., 1948 issue of *Lab Scents* external house organ of Aromatic Products, Inc., New York, is devoted to the fragrance, white lilac. The cover illustration for the four-page folder is a photograph of a group of white lilac trees in front of an old house. Perfuming compounds featuring the white lilac fragrance and odors for specific products are listed.

Fire at Reilly Plant

One of 12 two-story brick and frame buildings of Reilly Tar and Chemical Co., Newark, N. J., was destroyed in a four-alarm fire, April 10. The fire, which is believed to have started in the plant's processing building, where tar and oil are distilled, spread to a naphthalene car standing alongside the building. The car exploded, setting fire to a pier on the near-by Passaic River, where creosoted logs were stored. The fire, whose origin was not determined, was brought under control about an hour and one-half after it started.

On McCormick Board

Gerald M. Baxter, advertising manager of McCormick & Co., Baltimore, has been appointed to the board of directors of the company. Before joining McCormick & Co., Mr. Baxter was associated with the Hearst newspapers and was also connected with Barron C. Collier, Inc., and Emerson Drug Co. Announcement of his appointment to the board was made at the annual meeting of stockholders by Charles P. McCormick, president and chairman of the board.

U.S.I. Rotenone Letter

U. S. Industrial Chemicals, Inc., New York, recently issued a market letter reviewing the supply situation on rotenone. Manufacturers of finished insecticides are urged to anticipate their rotenone requirements as demand for rotenone type insecticides from home and truck gardeners and other commercial growers is "certain to be far in excess of earlier expectations." Few manufacturers have made adequate preparations for the expected demand, according to the U.S.I. letter, and it is now too late for added stocks to be readied for use during the 1948 season.

Coast Salesmen's Luncheon

The bi-monthly luncheon of the Chemical Salesmen's Association of California, San Francisco, was held Mar. 30 at El Jardin Restaurant. About 60 members and guests were present to hear Judge Twain Michelson of the San Francisco Motor Traffic Courts Division speak on drunken driving.

JAMES G. PARK

Chem. Salesmen Install

James G. Park of Enjay Co., New York, was recently installed as president of the Salesmen's Association of the American Chemical Industry. Other officers and directors include: Vice-president, Albert T. Loeffler, Monsanto Chemical Co.; treasurer, Charles V. Douglas, Diamond Alkali Co.; secretary, Paul W. Hiller, Innis, Speiden & Co.; directors, Edward A. Bush, Bush Aromatics, Inc.; Harold C. Green, L. Sonneborn Sons Co.; Robert L. Hutchins, Commercial Solvents Sales Corp.; Leon W. Miller, Barret Division, Allied Chemical & Dye Corp.; Robert J. Milano, Millmaster Chemical Co.; George W. Poland, Jr., Stauffer Chemical Co. and James E. Ferris, Niagara Alkali Co., member ex-officio.

Rosin Output Up in 1947

Figures on 1947 rosin production as compared with 1946 which appeared in the March issue of *Soap & Sanitary Chemicals* were inaccurately reported as indicating a drop in U.S. rosin consumption during 1947. As a matter of fact production advanced approximately 17 per cent during 1947 as compared with 1946. Production during the period April 1, to December 31, 1947 totaled more than 1,608,111 drums (520 pounds net) as compared with 1,368,373 drums during the similar period in 1946.

New du Pont Insecticide

"Marlate", a new methoxychlor insecticide, was announced recently by E. I. du Pont de Nemours & Co., Wilmington, Del. The new product acts either as a contact or stomach poison, and has lengthy residual qualities, according to the company. The active ingredient, bis(methoxyphenyl) trichloroethane, is practically non-toxic to warm-blooded animals, the company states. "Marlate" may be used as a dust or spray and is compatible with most commonly used fungicides and insecticides.

St. Louis Hears Cullen

Associated Drug and Chemical Industries of Missouri, Inc., heard Dr. Frederick J. Cullen, general representative of the Proprietary Association in Washington, D. C. speak on the subject of "News from Washington" at their regular April 14 meeting. Dr. Cullen has been Washington representative of the Proprietary Association since 1934.

Cinn. Drug, Chem. Meeting

George Lenney of the Citizen's Development Committee of the Cincinnati Chamber of Commerce, spoke at the regular monthly meeting of the Cincinnati Drug and Chemical Association, Mar. 29, at the Hotel Alms. Following dinner, Mr. Lenney spoke on "Cincinnati Master Plan". A short moving picture was also shown at the affair.

Glass Cont. Mfrs. Appoint.

Benjamin Wood has recently been named director of marketing for the Glass Container Institute. He was formerly managing director of Tea Bureau, Inc. Foote, Cone & Belding were named as the advertising agency for the institute for a new campaign which will be started shortly.

New Gunk Concentrates

Curran Ordnance Laboratory, Lawrence, Mass., has announced the availability of a new non-phenolic type of "Gunk" self-emulsifying cleaner. Designated as P-92 the new non-phenolic product will carry a lilac odor rather than the phenolic type odor of the Gunk P-96 line.

Bonnell Joins Colo. Chem.

The appointment of Dr. Daniel E. Bonnell, formerly plant manager for Velsicol Corp., Chicago, and more recently director of public relations for Julius Hyman and Co., Denver, as vice-president in charge of sales for Chemical Corp. of Colorado, Denver, was announced recently. A graduate of the University of Washington (Seattle), where he received a B.S. and a Bachelor's degree in education, Dr. Bonnell also worked towards his Master's at the University of Washington on a fellowship in 1936-37. Later he was associated with the Bureau of Entomology and Plant Quarantine of the U.S. Department of Agriculture. While at the U.S.D.A., he held positions in the Forest Insects and the Fruit Insects Divisions. Following this he joined the Oregon State Experiment Station and Oregon State College, where he received his Ph. D.

During World War II, Dr. Bonnell was commissioned as a first lieutenant in the U.S. Army Medical Department, Sanitary Corps. Upon his discharge from the Army he held the rank of lieutenant colonel.. He received two citations for his work in the army, which included studies in sanitation, tropical medicine and malariology. He also contributed to the development of water purification techniques now standard on large ships.

Coast Packaging Conf.

Approximately 100 companies engaged nationally and regionally in the manufacture and distribution of machinery, equipment, materials supplies and services in the fields of packaging, packing and shipping are expected to exhibit at the First Western Packaging Exposition in the San Francisco Civic Auditorium, Aug. 10-13. A Conference on Packaging, Packing and Shipping will be held at the same time as the exposition. Among the subjects considered tentatively for inclusion on the conference agenda were an analysis of materials and their characteristics, recent developments in packaging structure and design, enhanced methods of protection of contents against bacterial action, corrosion, infestation and atmospheric agencies, the current status of pre-packing, pre-treatment for pre-packaging, developments in carloading techniques, the proper application of sealing agents, merchandising factors, testing of packaging materials and improved use of packaging machinery.

Above: The exhibit of Sparhawk Co., Sparkill, N. Y., at the recent National Sportman's Show in New York featured: Live animals which produce scent; their glands in transparent vials and tinctures and fluid extracts of the glands as used in perfuming. Beakers containing scents produced by the muskrat, beaver, deer, fox, wolf and other species were part of the exhibit.

Balto. Wax Firm Operating

Production has been resumed at Baltimore Paint & Color Works following the recent fire, according to a release issued by the wax and varnish manufacturing company Mar. 31. According to the company's release, the damage to the plant was not as severe as was reported in the press and over the radio. The fire was principally confined to the varnish buildings, the release states. The company's warehouses were not affected and a large stock of finished goods is on hand and shipments are being made.

New Gulf Aerosol

Gulf Oil Corp., Pittsburgh, early in April announced plans to market a low-pressure "tin can" type aerosol dispenser to retail for $1.25. Gulf formerly distributed a 15-ounce heavy steel aerosol bomb to retail for $2.95. The new, light-weight, 12-ounce "bomb" has a push-button release set on a concave head. Formula for the new bomb incorporates pyrethrum, DDT and the pyrethrin activator, piperonyl butoxide. "Freon 11" and "12" liquid gases are the propellents.

Introduces New Line

A new line of household products was introduced recently by Hardin Chemical Co., New York, with the issuance of a tablet deodorizer, known as "Whizz Fizz" which, it is claimed, gets rid of odors and smoke on being dissolved in a glass of water. Newspaper and radio advertising in New York and Philadelphia were used to introduce the new product. Second product in the series to be introduced is a home dry cleaning preparation.

Quaternaries in Laundering

The application of a bactericide such as the quaternary ammonium compounds in laundering and the need for such germicides in washing operations are discussed in the March issue of the *Reporter*, house magazine of Rohm & Haas Co., Philadelphia. Included in the article is a brief history of the quarternaries, their origin and principle of operation. Application of the company's own version of a quaternary, known as the "Hyamines" is described in the article which bears the title: "This Is the Way We Wash Our Clothes."

New Fritzsche Catalog

A new catalog and price list was released January 10, 1948, by Fritzsche Brothers, Inc., New York. The new catalog lists 12 pages of essential oils, citrus concentrates, floral absolutes and concretes, aromatic chemicals, floral waters, animal and resinoid fixatives, tinctures, oleoresins, balsams, gums and sundries.

TRADE MARKS

(*From Page 61*)

FAMEX—This in upper and lower case, bold letters in ascending order from left to right for window cleaning compound. Filed Oct. 9, 1947 by Famex Mfg. Co., Bay City, Mich. Claims use since Stpt. 24, 1947.

KARBAM—This in upper case, bold letters for insecticides. Filed Aug. 22, 1947 by Sherwin-Williams Co., Cleveland. Claims use since Apr. 25, 1945.

SUNRAE—This in upper case, extra bold, black letters for liquid chemical deodorizer. Filed July 5, 1947 by Sinclair Manufacturing Co., Toledo, O. Claims use since Oct. 15, 1929.

TETRON—This in upper case, medium bold letters for insecticides. Filed Oct. 13, 1947 by Eston Chemicals, Inc., Los Angeles. Claims use since Sept. 19, 1947.

GOLDEN KEY—This in upper and lower case, medium script letters across a vertically drawn key for soap flakes. Filed July 15, 1947 by Great American Tea Co., New York. Claims use since June 14, 1924.

BSM—This in upper case, extra bold. black letters for disinfectants. Filed Aug. 20, 1947 by Buckman Laboratories, Inc., Memphis Tenn. Claims use since Nov. 1, 1945.

ROUMINE—This in upper case, extra bold letters for wetting agents. Filed Aug. 2, 1947 by Roux Laboratories, Inc., New York. Claims use since July 3, 1941.

MOTHOLATOR—This in large and small capital letters for preparation for repelling and exterminating moths. Filed Oct. 7, 1947 by Odora Co., New York Claims use since Sept. 20, 1930.

MEADOWBROOK—This in upper case, medium letters for shampoo. Filed Oct. 23, 1947 by B. Altman & Co., New York. Claims use since Oct. 3, 1947.

SANTOQUIN—This in upper case, medium bold letters for chemical toxicants use for insecticides. Filed Oct. 27, 1947 by Monsanto Chemical Co., St. Louis. Claims use since Sept. 30, 1947.

GOLD AWARD—This in upper and lower case, medium script letters for liquid shampoo. Filed July 5. 1947 by L & K Laboratories & Co., St. Paul. Claims use since Oct. 1, 1946.

PARAPROL—This in upper case, open letters for skin protector and cleanser. Filed Aug. 19, 1947 by National Drug Co., Philadelphia. Claims use since Jan. 10, 1946.

MEXIDE—This in upper case, bold letters for insecticides. Filed Nov. 4, 1947 by Woodfolk Chemical Works, Ltd., Fort Valley, Ga. Claims use since Feb., 1937.

CITROLA—This in upper case, extra bold letters for oil polishes for furniture, finished and lacquered metals, automobiles, hard wood floors, etc. Filed Aug. 28, 1947 by Dajan Chemical Co., Boston. Claims use since Dec. 7, 1926.

PINE BUDS—This in upper and lower case, bold script letters for sudsing cleaner, cleaners and detergent. Filed July 5, 1947 by Hewitt Soap Co., Dayton, O. Claims use since Jan. 1, 1937.

COAGUSOL—This in upper case, bold letters for chemical preparation for cleaning surgical instruments. Filed July 28, 1947 by Hospital Liquids, Inc., Chicago. Claims use since June 23, 1947.

KOCOSOPE—This in upper and lower case, extra bold, script letters for liquid toilet soap. Filed August 16, 1947 by U. S. Sanitary Specialties Corp., Chicago. Claims use since 1925.

VD—This in upper case, open and shadow letters for preparation for removing spots from garments and fabrics. Filed Aug 18, 1947 by Adco, Inc., Sedalia, Mo. Claims use since 1932.

TREX—This in upper case, bold stencil letters for wetting agent. Filed Aug. 19, 1947 by Griffin Chemical Co., San Francisco. Claims use since Apr. 11, 1947.

DR. SALSBURY'S — This in upper and lower case, bold letters for insecticides, disinfectants, rodenticides, etc. Filed Sept. 3, 1947 by Dr. Salsbury's Laboratories, Charles City, Ia. Claims use since 1924.

LIQUI-MIST—This in upper case, extra bold letters for insecticides. Filed Nov. 25, 1947 by Food Machinery Corp., San Jose, Calif. Claims use since Sept 24, 1947.

TOXICHLOR—This in upper case, extra bold letters for insecticides. Filed Nov. 25, 1947 by Thompson-Hayward Chemical Co., Kansas City, Mo. Claims use since July 15, 1947.

Vari-Visco Filling Machine

In addition to the "Cadet Model" Vari-Visco filling machine which was referred to in our April issue the Karl Kiefer Machine Company, Cincinnati, also make a heavy duty model in this same type filling machine which operates at a higher speed and gives the user a wider latitude in range of container sizes to be filled.

Warwick Moves Offices

Warwick Chemical Co., division of Sun Chemical Corp., New York, recently moved their offices from 580 Fifth Ave., New York to the Sun Building at 10-10 44th Ave., Long Island City, N. Y. The new quarters are adjacent to the Sun laboratories and provide increased working space for the expanded activities of the division.

Quaternary Test Paper

The approximate concentration of quaternary germicide in solutions for use in commercial and industrial applications can be determined through the use of "Portley Test Paper Methods" offered by Fairfield Laboratories, Inc., Plainfield, N. J. The papers, sensitive from 40 to 3,000 p.p.m. of the quaternary germicide solution, are immersed in the solution to be tested for 15 seconds. By comparison with color standards on the chart supplied with the test paper, the entire residuum of a use-solution is determined.

The test paper is available in 15 foot rolls, together with a dispenser for which refills may be obtained, or in envelopes containing two inch square perforated test paper sheets.

Pickle Sanitation Booklet

A manual of procedures for maintaining optimum microbiological control in pickle processing with "Emulsept," a germicidal detergent made by Emulsol Corp., Chicago, was issued late in April. The booklet, "Use Bulletin P" gives methods for washing cucumbers, sanitizing equipment and hands of packers and handlers.

Westvaco DDT Brochure

A 12-page brochure on DDT and its application was issued recently by Westvaco Chemical Corp., New York. A feature of the new, two color brochure is tables on the use of DDT in homes, on livestock, etc. A thumbnail sketch of the historical background of the company and its products is also included.